

**EFFECTIVENESS OF MULTICOMPONENT INTERVENTION ON
STRESS AND QUALITY OF SLEEP AMONG PATIENTS WITH
CANCER WHO ARE UNDERGOING RADIATION THERAPY
IN SELECTED HOSPITALS
AT ERODE**

**A DISSERTATION SUBMITTED TO
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI
IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER OF SCIENCE IN NURSING**

2010 – 2012

**EFFECTIVENESS OF MULTICOMPONENT INTERVENTION ON STRESS
AND QUALITY OF SLEEP AMONG PATIENTS WITH CANCER WHO ARE
UNDERGOING RADIATION THERAPY IN SELECTED HOSPITALS
AT ERODE**

Ms. T. J. GLADS ROBALA

M.Sc., Nursing II Year

**Bishop's College of Nursing
Dharapuram.**

**A DISSERTATION SUBMITTED TO
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI
IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER OF SCIENCE IN NURSING**

2010 – 2012

**A STUDY TO EVALUATE THE EFFECTIVENESS OF MULTICOMPONENT
INTERVENTION ON STRESS AND QUALITY OF SLEEP AMONG
PATIENTS WITH CANCER WHO ARE UNDERGOING
RADIATION THERAPY IN SELECTED HOSPITALS
AT ERODE**

**Certified Bonafide Project Work
Done By**

MS. T.J. GLADS ROBALA

M.Sc., Nursing II Year

Bishop's College of Nursing

Dharapuram.

Internal Examiner

External Examiner

COLLEGE SEAL

**A DISSERTATION SUBMITTED TO
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI
IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER OF SCIENCE IN NURSING**

2010 – 2012

**A STUDY TO EVALUATE THE EFFECTIVENESS OF MULTICOMPONENT
INTERVENTION ON STRESS AND QUALITY OF SLEEP AMONG
PATIENTS WITH CANCER WHO ARE UNDERGOING
RADIATION THERAPY IN SELECTED HOSPITALS
AT ERODE**

APPROVED BY DISSERTATION COMMITTEE ON _____

RESEARCH GUIDE:-

Prof. Mrs. Vijayarani Prince, _____

M.Sc(N)., M.A., M.A., M.Phil(N).,

Principal,

Bishop's College of Nursing,

Dharapuram.

CLINICAL GUIDE:-

Prof. Mrs. Vijayarani Prince, _____

M.Sc(N)., M.A., M.A., M.Phil(N).,

Principal,

Bishop's College of Nursing,

Dharapuram.

MEDICAL EXPERT:-

Dr.K.Velavan, M.B.B.S.,M.D.R.T., _____

Consultant Oncologist,

Erode Cancer Centre,

Erode.

**A DISSERTATION SUBMITTED TO
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI
IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER OF SCIENCE IN NURSING**

2010 – 2012

ACKNOWLEDGEMENT

**“O give thanks unto the Lord, for He
is good
because His mercy endureth for
ever”**

Psalms 118:1

I whole heartedly thank our **God** almighty who strengthened, accompanied and blessed me throughout the study.

I extend my heart full thanks and gratitude to the **Management**, Bishop's College of Nursing for providing an opportunity to undergo to uplift my professional life.

With deep sense of gratitude, I express my sincere thanks to our beloved Principal, **Prof. Vijayarani Prince M.Sc(N)., M.A., M.A., M.Phil (N) Bishop's College of Nursing** for her expert guidance, thoughts, comments, invaluable suggestions, constant encouragement and support throughout the period of study.

I express my thanks to **Mr. John Wesley**, Administrator, Bishop's College of Nursing for given me an opportunity to study in this esteemed institution.

It gives me immense pleasure to thank with deep sense of gratitude my research guide **Mrs.Tamilselvi, M.Sc (N)., Lecturer, Department of Medical Surgical Nursing** for her Valuable Suggestions, encouragement, perfect direction, pensive correction, personal interest, constant support and prayers till the completion of the study.

I would like to owe my profound gratitude to extend my deepest gratitude to **Mrs. Glory Suresh, M.Sc(N)., Associate Professor, Class co-**

ordinator, for her expert guidance, constant support and untiring efforts in the area of research kindled my spirit and enthusiasm to go ahead and to accomplish this study successfully.

I acknowledge my genuine gratitude to **Dr.P.Sudhahar, M.D(RT), Dr.K.Velavan M.D(RT), Dr. R. Sampath MD,DMRT** for their extensive guidance, treasured help and experts opinion in successful completion of the study.

I express my deep sense of gratitude and obligation to **Mr. Duraisamy, Ph.D (Stat).,** for his suggestions in analysis and presentation of data.

My immense thanks to **librarians of Bishop's College of Nursing** for their Co-operation in procuring books when needed.

I extend my special gratitude to **Vijay Xerox,** for their patience, co-operation, understanding the needs to be incorporated in the study and timely completion of the manuscript

I convey my loving thanks to my dear father **Mr. T. Justus Robinson,** mother **Mrs. Y. Vimala Hepsi Bai,** brother **Mr.T. J. Robal Spurgen** who are always behind me in every step of my life.

I continue to be indebted to all for their support, guidance and care who directly and indirectly involved in my progress of work and for the successful completion of this research project.

TABLE OF CONTENT

CHAPTER	TITLE	PAGE NO
I	(i)INTRODUCTION	
	➤ Background of the Study	1
	➤ Need for the study	6
	➤ Statement of the problem	12
	➤ Objectives of the study	12
	➤ Operational definitions	13
	➤ Hypotheses	16
	➤ Assumptions	17
	➤ Delimitations	17
	➤ Projected outcome	17
	(ii)CONCEPTUAL FRAMEWORK	18
II	REVIEW OF LITERATURE	24
	PART-I	
	➤ Over view of	
	a) Cancer	25
	b) Stress	30
	c) Sleep	32
	d) other complementary therapies	36
	e) multi component intervention	37
	PART-II	

	A. Studies related to incidence and prevalence of cancer	46
	B. Studies related to level of stress among patients with cancer	49

CHAPTER	TITLE	PAGE NO
	C. Studies related to quality of sleep among patients with cancer.	50
	D. Studies related to correlation between level of stress and quality of sleep.	51
	E. Studies related to effectiveness of multicomponent intervention programme on stress and quality of sleep among patients with cancer (yoga, deep breathing exercise, muscle relaxation exercise).	52
	G .Studies related to nurses role in multicomponent intervention .	58
III	METHODOLOGY	
	➤ Research approach	59
	➤ Research design	59
	➤ Setting of the study	60
	➤ Population	61

	<ul style="list-style-type: none"> ➤ Sample ➤ Criteria for sample selection <ul style="list-style-type: none"> ❖ Inclusion Criteria ❖ Exclusion Criteria ➤ Sample size ➤ Sampling technique ➤ Instrument and scoring procedure <ul style="list-style-type: none"> ❖ Description of the instrument ❖ Scoring procedure ➤ Validity and reliability of the tool ➤ Pilot study ➤ Data collection procedure 	61 61 61 61 61 62 62 62 63 64 64 65
CHAPTER	TITLE	PAGE NO
	<ul style="list-style-type: none"> ➤ Plan for data analysis ➤ Protection of human subjects 	66 68
IV	DATA ANALYSIS AND INTERPRETATION	69-107
V	DISCUSSION	108-117
VI	SUMMARY , CONCLUSION	118-122
	<ul style="list-style-type: none"> ➤ IMPLICATIONS <ul style="list-style-type: none"> ❖ Nursing service ❖ Nursing education ❖ Nursing administration ❖ Nursing research ➤ RECOMMENDATIONS ➤ LIMITATIONS 	122 123 123 123
	BIBLIOGRAPHY	125-128
	<ul style="list-style-type: none"> ➤ References 	

	APPENDICES	i-lxi
--	-------------------	--------------

LIST OF TABLES

Table No.	Title	Page No.
1	Frequency and percentage distribution of demographic variables among patients with cancer undergoing radiation therapy in experimental and control group	73
2	Frequency and percentage distribution of pre test level of stress among patients with cancer who are undergoing radiation therapy in experimental and control group	89
3	Frequency and percentage distribution of pre test quality of sleep scores among patients with cancer who are undergoing radiation therapy in experimental and control group	91
4	Frequency and percentage distribution of post test level of stress among patients with cancer who are undergoing radiation therapy in experimental and control group	93
5	Frequency and percentage distribution of post test quality of sleep scores among patients with cancer who	

6	are undergoing radiation therapy in experimental and control group. Comparison of mean, standard deviation, mean difference and paired 't' value of pre test and post test level of stress among patients with cancer who are undergoing radiation therapy in experimental group	95 97
7	Comparison of mean, standard deviation, mean difference and paired 't' value of pre test and post test quality of sleep scores among patients with cancer who are undergoing radiation therapy in experimental group	98
Table No.	Title	Page No.
8	Comparison of mean, standard deviation, mean difference and paired 't' value of pre test and post test level of stress among patients with cancer who are undergoing radiation therapy in control group	99
9	Comparison of mean, standard deviation, mean difference and paired 't' value of pre test and post test quality of sleep among patients with cancer who are undergoing radiation therapy in control group	100
10	Comparison of mean, standard deviation, mean difference and independent 't' value of post test level of stress among patients with cancer who are undergoing radiation therapy between experimental group and control group.	101
11	Comparison of mean, standard deviation, mean difference and independent 't' value of post test quality of sleep among patients with cancer who are undergoing radiation therapy between experimental group and control group	102
12		

13	Correlation between the mean post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group	103
14	Association between the mean post test level of stress among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.	104
	Association between the mean post test quality of sleep among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group	107

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
1	Conceptual frame work.	24
2	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their age in experimental group and control group	78
3	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their sex in experimental group and control group.	79
4	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their educational status in experimental group and control group	80
5	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their occupational status in experimental group and control group.	81
6	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their marital	82

	status in experimental group and control group	
7	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their religion in experimental group and control group.	83
8	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their family monthly income in experimental group and control group.	84
9	Percentage distribution of patients with cancer who are undergoing radiation therapy according to the type of family in experimental group and control group.	85
10	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their area of residence in experimental group and control group	86

FIGURE NO	TITLE	PAGE NO
11	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their duration of illness in experimental group and control group	87
12	Percentage distribution of patients with cancer who are undergoing radiation therapy according to their duration of treatment in experimental group and control group	88
13	Percentage distribution of level of stress among patients with cancer who are undergoing radiation therapy in experimental group and control group in pre test	90
14	Percentage distribution of quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group and control group in pre test	92
15	Percentage distribution of level of stress among patients with cancer who are undergoing radiation therapy in experimental group and control group in post test	94
16	Percentage distribution of quality of sleep among	96

	patients with cancer who are undergoing radiation therapy in experimental group and control group in post test	
--	--	--

LIST OF APPENDICES

APPENDIX	CONTENT	PAGE NO.
A	Letter seeking permission for conducting the study	i
B	Letter seeking for experts opinion for content validity	iii
C	List of experts for validation	iv
D	Certificate for validity	v
E	Certificate for English editing	xi
F	Certificate for Tamil editing	xii
G	Certificate for Yoga	xiii

H	Tools	
	• English	xiv
	• Tamil	xx
I	Information Booklet	
	• English	xxvi
	• Tamil	xxxviii
J	Photos	xlix

ABSTRACT

Cancer, the word cancer comes from the Latin derived term for crab, because of the way a cancer adheres to any part that it seizes upon in an obstinate manner like the crab. Hippocrates first described cancer as having a central body with the tendency to reach out and spread like "the arms of a crab" It is a disease characterized by uncontrolled and unregulated growth of cells. It is a major health problem that occurs in people of all ethnicities. The face of health care including scientific knowledge and care delivery systems is ever changing. Like wise, the experience of cancer is changing for our clients and families. Cancer remains a frightening unknown for many so clients, especially older ones still associate the word with death.

Patients facing changes in their physical health are at a juncture for emotional and spiritual transition within the context of the life changes accompanying illness or injury. Cancer is a disease characterized by the rapid and uncontrolled growth of aberrant cells into malignant tumors. As nursing care focuses on person as a whole, the identification of physiological and psychological need is part of the comprehensive nursing care designed with the patient. Other than meeting the physical needs, alternative therapies may also help in reducing the stress and improving the quality of life in cancer patients.

Study was done to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode.

The conceptual framework of the study was based on the "Modified Roy's Adaptation model" (1984). The research design used was non equivalent pre test post test control group design. Non probability purposive sampling method was used to select the 60 samples for the study. The tool used for this study was Herschbach's stress assessment rating scale and Hay's and

Steward's sleep assessment rating scale before and after intervention. Multi component intervention was demonstrated to the participants for 50 minutes daily in the morning and evening for 20 days. Practicing yoga for 20 minutes, deep breathing exercises for 10 minutes and muscle relaxation exercises for 20 minutes by the samples was demonstrated and assisted to follow the intervention for 20 days. The data gathered were analyzed using descriptive and inferential statistics. The Independent 't' value for level of stress was 10.88 which was significant at $p < 0.05$ level. The Independent 't' value for quality of sleep was 14.7 which was significant at $p < 0.05$ level. The findings showed a negative correlation ($r = -0.9$ post test) between level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy. Hence it indicate that as the level of stress increases, quality of sleep decreases.

The study findings revealed that there is no association between the level of stress among cancer patients after intervention with their selected demographic variables except for sex ($\chi^2 = 6.003$) and family monthly income ($\chi^2 = 16.362$) and there is no association between the quality of sleep among patients with cancer after intervention with their selected demographic variables except for sex ($\chi^2 = 9.999$). There is a significant reduction in the level of stress and improvement in the quality of sleep among patients with cancer after multicomponent intervention. The study findings revealed that practicing non expensive and non pharmacological multicomponent intervention is beneficial for patients with cancer who are undergoing radiation therapy to improve their quality of sleep and in reducing the level of stress.

CHAPTER - I

CHAPTER - II

CHAPTER - III

CHAPTER - IV

CHAPTER - V

CHAPTER - VI

BIBLIOGRAPHY

APPENDICES

CHAPTER –I

INTRODUCTION

BACKGROUND OF THE STUDY

“It makes no sense to worry about things you have no control over because there is nothing you can do about them and why worry about things you cannot control? The activity of worrying things keep you immobilized”

Dyer W.,(2008)

Today increasing emphasis is placed on health, health promotion, wellness and self care. Health is seen as resulting from a lifestyle oriented towards wellness. People are increasingly knowledgeable about their health and take more interest in and responsibility for their health and well being. Health care professionals are concerned with encouraging behavior that promotes health. The goal is to motivate people to make improvements in the way they live, to modify risk behaviors and to adopt healthy behaviors.

Brunner.et.al.,(2008)

Wellness is a positive state of health. The concept of wellness refers to a level of physical and emotional harmony that affords maximum resistance to disease and supports a sustained joy of living. Wellness involves the health of the whole person including body, mind and spirit. It is believed that positive wellness provides the most effective protection against disease by enabling inner healing abilities thereby promoting the quality of life.

Zysman.,(1999)

A chronic disease can be defined as a disease that has a prolonged course, that does not resolve spontaneously, and for which a complete cure is rarely achieved. Chronic diseases account for the overwhelming majority of deaths and disability. Few of them are Alzheimer’s disease, Arthritis, Asthma, Cancer, Cardiovascular disease, Diabetes, Heart disease, Stroke.

Minnesota Department of Health., (2007)

Cancer is not an illness but rather a categorization, at the cellular level, of a characteristic uncontrolled replication. Cancer affects multisystems and the mortality rate is high after diagnosis. The complexity of cancer treatment involves multiple medical disciplines (histopathology, oncology, surgery, radiotherapy, palliative and pain care, occupational, physical, and for some speech therapy) contrasts with the majority of chronic illnesses such as arthritis, diabetes, asthma, back pain, epilepsy, multiple sclerosis and heart failure.

Tritter J.Q., (2002)

Cancer arises from the abnormal and uncontrolled division of cells, known as cancer cells that then invade and destroy the surrounding tissues. Cancer cells are different from normal cells in some aspects. They do not remain confined to one part of the body. A cancer may be slow-growing or fast growing. Growth of cancer cells leads generally to the formation of a nodule or tumor.

Jaggi O.P., (1994)

Cancer is a leading cause of death around the world. WHO estimates that 84 million people will die of cancer between 2005 and 2015 without intervention. WHO supports International Union Against Cancer to promote ways to ease the global burden of cancer . Each year 4th February is globally observed as World cancer day, preventing cancer and raising quality of life for cancer patients are recurring themes.

World Health Organisation., (2011)

Cancer diagnosis is a traumatic event, the experience of a life-threatening illness, cancer can lead to the development of stress. Stress occurs due to the uncertainty of future, the unpredictability of the cancer, disability,

and financial difficulties. Common signs of stress can include disturbed sleep, fatigue, body aches, pain, anxiety, irritability, tension and headaches.

Tull., (2008)

The body responds to stress by releasing stress hormones, such as epinephrine and cortisol. The body produces these stress hormones to help a person react to a situation with more speed and strength. Stress hormones increase the blood pressure, heart rate and blood sugar levels. Stress also can lead to unhealthy behaviours such as overeating, smoking, abusing drugs or alcohol, that may affect cancer risk.

National Cancer Institute., (2008)

Stress diminishes the quality of life by reducing feelings of pleasure and accomplishment, the relationships are often threatened. Stress is associated with the onset of depression, anxiety, heart disease, weight gain, eating disorders, diabetes, pain, muscular and joint pain, head ache.

Scott D.A., (2005)

For patients with cancer, sleep is potentially affected by a variety of factors including the biochemical changes associated with the process of neoplastic growth and anticancer treatments and symptoms that frequently accompany cancer such as pain, fatigue, and depression.

Roscoe A., (2007)

It is estimated that 45% of oncology patients experience sleep disturbances, this is three times the estimate of its occurrence in the general population. Sleep problems can be both physiological and psychological in nature, which can make the diagnosis and treatment difficult. Sleep disorders in cancer patients influence factors like the perception of physical symptoms, tolerance of treatment measures, and quality of life.

Meyers S.,(2010)

Sleep disturbances negatively impact the cancer treatment regimen and the quality of life. Poor sleep makes other cancer-related symptoms such as pain and fatigue worse. Sleep disruptions also reduces the body's ability to fight infection. Chronic insomnia can cause fatigue, irritability, concentration problems, depression, and anxiety. It also affects the ability to cope with cancer treatment, completing daily tasks and maintaining relationships with others.

Kafin J.,(2009)

The diagnosis of cancer affects not only the individual client but also the patient's family. The daily life of the family is changed. Family's resources, perception of cancer, functioning patterns, coping strategies and stressors are the factors affecting their ability to respond to the crisis of cancer.

Black M.,(2005)

Types of treatment for cancer includes chemotherapy, radiation therapy, surgery, angiogenesis inhibitor therapy, biological therapy, bone marrow transplantation, peripheral blood stem cell transplantation, gene therapy, laser treatment, photodynamic therapy, targeted cancer therapies.

National Cancer Insititute., (2010)

Alternative therapies to manage stress include conventional medicine, counseling and psycho therapy, relaxation, meditation, massage, yoga, acupressure, aromatherapy, Hebraism, biofeedback, homeopathy, hypnotherapy, pet therapy and reflexology.

Sharma P., (2009)

Relaxation techniques to promote sleep include deep breathing exercise, progressive muscle relaxation exercises, meditation, guided imagery, yoga, Tai Chi, massage therapy etc.,

University of Michigan., (2010)

Depending on the location of the tumors, cancer can cause a wide range of side effects on the body. Cancer can cause extreme fatigue, indigestion, trouble swallowing, constant fevers, persistent coughing and body aches or pains, itching, erythema and darkening of skin colour, irregular sized stool, blood in stool and constant diarrhea or constipation. Cancer can cause serious cognitive effects. Individuals experience problems with paying attention or focusing, thinking, awareness, memory loss, sleeping and walking.

Rockwell .,(2009)

Most stress reduction intervention has targeted the reduction of symptoms of cancer and side effects due to the treatment of cancer such as sleep disturbance and stress. Yoga, deep breathing exercises and muscle relaxation exercises are helpful tools for coping with stress and promoting sleep for many patients with cancer as it relaxes the body and calms the mind.

Kanmani., (2009)

Yoga benefit physical, mental and spiritual health. Yoga may increase the levels of a neurotransmitter GABA. Yoga increases blood flow to the brain, increases the release of endogenous dopamine and reduces respiratory rate thereby reduces the stress response.

Sloan-Kettering Institute., (2011)

Deep, rhythmic breathing expands the diaphragm muscle. The expansion and contraction of the diaphragm actually stimulates the lymphatic system. The sympathetic nervous system, which is stimulated in times of stress and anxiety, controls the fight or flight response. This is counteracted by the parasympathetic nervous system which is activated during deep breathing techniques.

Pick., (2006)

During stress, the larger muscle groups of the arms and legs as well as the muscles of the chest and back become flooded with oxygen-rich blood. The brain signals these muscles to become tense. Progressive muscle relaxation

focuses on tensing and relaxing these muscles thereby discharging any tension that has been retained in the muscle.

Counselling and mental health center.,(2010)

NEED FOR STUDY

The incidence of cancer and cancer types are influenced by many factors such as age, sex, race, local environmental factors, diet, and genetics. Consequently, the incidence of cancer and cancer types vary depending on these variable factors.

Overall, world wide there were 10.9 million new cases, 6.7 million deaths and 24.6 million persons alive with cancer (within three years of diagnosis). The most commonly diagnosed cancers are lung (1.35 million), breast (1.15 million), and colorectal (1 million). The most prevalent cancer in the world is breast cancer (4.4 million survivors up to 5 years following diagnosis).

Parkin M., (2005)

Cancer is a leading cause of death worldwide and accounted for 7.6 million deaths (around 13% of all deaths) in 2008. The main types of cancer are lung (1.4 million deaths), stomach (740000 deaths) and liver (700000 deaths) colorectal 610000 deaths, breast (460000 deaths).

World Health Organisation., (2011)

In United States of America the cancer incidence in male according to their site is prostate 33%, lung 13%, colon/rectum 10%, Urinary bladder 6%, skin 5%, Non Hodgkin's Lymphoma 4%. Cancer incidence in female according to their site is breast 31%, lung 12%, colon/rectum 11%, uterus 6%, Non Hodgkin's Lymphoma 4%, skin 4%.

American Cancer Society., (2006)

In Denmark there is highest female and overall cancer rate. The highest cancer rate in men has been recorded in France. Countries like Denmark,

Ireland, Australia, New Zealand, Belgium, France, US , Norway, Canada, Czech Republic are presenting more incidence of cancer.

World Cancer Research Foundation.,(2011)

In Russia cancer mortality are among highest in the world. Mortality from all cancers in Russian men (212 per 100000 population) is much higher than in men in the US (162 per 100000 population), Canada (161 per 100000 population), in Great Britain (170 per 100000 population) or other western countries.

Russian Cancer Society.,(2010)

Around 309,500 people were diagnosed with cancer in the United Kingdom in 2008; this equates to around 504 cases for every 100000 people. Across UK, the lowest rates are seen in England for both sexes (411 per 100000 in males and 361 per 100000 in females, respectively) whereas the highest rates are seen in Wales for males and Scotland for females (463 per 100000 and 403 per 100000 respectively).

Cancer research uk.,(2011)

In Australia, for women the most common cancers were breast cancer (29% of all new cases), colorectal (14%), melanoma (10%) and lung (7%). For men, the most common cancers were prostate cancer (23%), colorectal (15%), lung (11%) and melanoma (11%).

Ian McDermid., (2005)

In Canada an estimated 177,800 new cases of cancer (excluding 74,100 non-melanoma skin cancers) and 75,000 deaths from cancer occurred in Canada in 2011. Colorectal cancer has a significant impact on mortality for men and women combined, with an estimated 8,900 deaths (12% of all cancer deaths).

Canadian Cancer Society.,(2011)

In China cancer is accountable for 25 percent of all urban deaths and 21 percent of all rural deaths. Smoking, poor diet, water pollution and

environmental problems have caused the nation's cancer death rate to rise 80 percent in the past 30 years.

Adrienne Wong, (2008)

In India, 1.5 to 2 million cancer cases are diagnosed. 7 lakh new cases of cancer and 3 lakh deaths occur annually due to cancer. 15 lakh patients require facilities for diagnosis, treatment and follow up at a given time.

Agarwall, (2011)

In India the cancer rate is considerably lower than the developed countries. A survey included more than 200000 patients with histopathologically confirmed cancers indicates that the incidence of gall bladder cancer in women in New Delhi is 10.6 per 100000 of the population, one of the world's highest rate for women for this case. The incidence of mouth cancer among men in Pondicherry was 8.9 per 100 000, one of the highest rates in the world for men. Rates of stomach cancer were high among men in Bangalore and Chennai.

Nita, (2007)

About 26.6% increase is expected in the registered number of cancer cases in cities and 52.68% increase is projected for Delhi which would mean highest number of cases in Delhi among the cities within a span of eight years. And in Mumbai it is expected to have a marginal decline in the number of cases for the year 2008 (around 3.25%). It is estimated about 50% cancer mortality is reported from the age group 55 and above years.

Marimuthu, (2008)

In Chennai, the total cancer burden is predicted to increase by 32% by 2012–16 with 19% due to changes in cancer risk and a further 13% due to the impact of demographic changes. The incidence of cervical cancer will decrease by 46% in 2015. Among men, a 21% decline in the incidence of

oesophageal cancer by 2016 contrasts with the 42% predicted increase in prostate cancer. The annual cancer burden predicted for 2012–16 for Chennai, is translating to 55 000 new cases per year.

Swaminathan R.et.al.,(2011)

In India it is estimated that there are 2 to 2.5 million cancer patients at any given point of time with about 0.7 million new cases coming every year and nearly half die every year. To control this problem the Govt. of India has launched a National Cancer Control Programme in 1975 and revised its strategies in 1984-85 stressing on primary prevention and early detection of cancer. The goals are the primary prevention of tobacco related cancers, secondary prevention of cancer of the uterine cervix, mouth, breast etc and tertiary prevention includes extension and strengthening of therapeutic services including pain relief on a national scale.

National Institute of Health and Family Welfare.,(2009)

A study was conducted to assess the longitudinal associations between stress and cancer using meta-analytic methods. The results of 165 studies indicate that stress-related psychosocial factors are associated with higher cancer incidence in initially healthy populations ($P < 0.05$) and poorer survival in patients with diagnosed cancer was noted in 330 studies ($P < 0.001$) and higher cancer mortality was seen in 53 studies ($P < 0.001$).

Chida .et.al., (2008)

In a study conducted in UCLA Medical center hospital to assess the sleep disturbance in 33 breast and 23 prostate cancer patients receiving radiation therapy using Medical outcomes study- sleep scale, it was mentioned that 20-70% of women and 35-50% of men have sleep difficulties at some point during cancer trajectory.

Thomas .et.al.,(2010)

Stress leads to poor sleep and sleeping poorly leaves more susceptibility to stress. Insomnia further reduces testosterone output reducing the deep sleep phases and elevates the stress hormone cortisol, raises blood pressure, depletes the immune response and causes many other health problems. These elevated stress hormones further disrupts the sleep pattern.

James Green., (2008)

Pharmacologic management of sleep disturbances primarily promote the mechanisms of GABA or inhibit the mechanism of histamine. Primary side effects of GABA promoting agents are amnesia, increased impulsivity, headache, increased appetite. Primary side effects of histamine reducing agents are memory problems, dry mouth, and blurred vision Pharmacologic treatment measures are used in the management of depression and anxiety in oncology patients with sleep pattern alterations. Benzodiazepines are used as anxiolytics and are also one of the primary treatment measures for insomnia.

Stacey M.,(2010)

A study to evaluate the effects of an integrated yoga program on psychoimmune and endocrine outcomes was conducted among breast cancer patients. 66 breast cancer survivors were recruited and randomized to receive yoga for a period of 12 weeks. Paired “t” test showed significant decrease in salivary cortisol in yoga group alone. The results offer preliminary support for stress reduction benefits of yoga intervention.

Raghavendra., (2010)

In a review and analysis of several studies, Richard Brown and Patricia Gerbarg reported that yogic deep-breathing techniques were extremely effective in handling depression, anxiety, and stress-related disorders. These techniques can serve as an excellent adjunct to conventional medical treatment.

Brown .et.al.,(2005)

A pre experimental study was conducted to assess the effectiveness of muscle relaxation therapy upon patients with sleep deprivation. 30 patients were selected by purposive sampling method. The result revealed that the level of sleep of patients was inadequate ($M= 84.2$, $SD= \pm 14.72$) and after muscle relaxation therapy it was found that their level of sleep has improved ($M= 58.76$, $SD \pm 9.29$). The difference was statistically proved to be significant at $p < 0.001$ level, with the 't' value = 14.69.

Shalini.et. al., (2008)

Rehabilitative nursing is an integral part of all phases of patient-centered care. The role of nurse in addressing rehabilitation issues for cancer patients is teaching, counselling, coordination. Nurses have made significant contributions to educational programs available to cancer patients and their families. Nurses have developed roles and programs that promote the process of rehabilitation.

Anderson J.L., (1989)

The investigator observed during her experience in Erode cancer centre that cancer patients were under extreme stress and were suffering from disturbed sleep pattern related to diagnosis of cancer, treatment, and prognosis. The patients were given high doses of sleep medications which has more side effects and resulting in treatment/ drug resistant insomnia. This is again a cost consuming process. To help the patients getting rid of stress and to improve the quality of sleep, the nurse should incorporate complementary therapy with her routines to promote sleep without sleep medication.

This motivated the researcher to conduct a study on multicomponent intervention among patients with cancer to reduce stress and to improve the quality of sleep.

STATEMENT OF THE PROBLEM

A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode.

OBJECTIVES

- 1) To assess the pre test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.
- 2) To assess the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.
- 3) To compare the pre test and post test level of stress among patients with cancer who are undergoing radiation therapy in experimental and control group.
- 4) To compare the pre test and post test quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.
- 5) To compare the post test level of stress among patients with cancer who are undergoing radiation therapy between experimental and control group.
- 6) To compare the post test quality of sleep among patients with cancer who are undergoing radiation therapy between experimental and control group.
- 7) To find out the relationship between the post test level of stress and quality of sleep in experimental group.
- 8) To find the association between the post test level of stress among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

- 9) To find the association between the post test quality of sleep among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

OPERATIONAL DEFINITIONS

EFFECTIVENESS

Effectiveness refers to the production of a desired or intended result.

Kindersley D.,(2007)

In this study it refers to determine the extent to which multicomponent intervention has brought about significant difference in reducing the level of stress and improving the quality of sleep among patients with cancer who are undergoing radiation therapy by using statistical measurements.

MULTICOMPONENT INTERVENTION

It refers to planned series of three or more related measures or activities with a long term aim to promote good health behaviour.

Oxford Dictionary., (2004)

In this study multi component intervention includes **demonstrating and assisting to do yoga for 20 minutes, deep breathing exercises for 10 minutes and muscle relaxation exercises for 20 minutes to a group of patients with cancer who are undergoing radiation therapy for 50 minutes in the morning and evening for 20 days** to reduce the level of stress and to improve the quality of sleep.

YOGA

Yoga an ancient Indian art and science means union or joining together of the individual and universal spirit. It is a way by which the restless mind is calmed and directed into constructive channels. Yoga uses body postures along with meditation and breathing exercises to achieve a balanced, disciplined workout that releases muscle tension, tones the internal organs and energizes the mind, body and spirit to allow natural healing to occur.

Nayar P.,(2005)

In this study yoga refers to practise **asana- padmasana**(sitting comfortably with head and spine upright, right foot on left thigh and left foot on right thigh, resting both hands on knees), **shavasana**(lying flat on the back comfortably with head and spine in straight line and feet slightly apart in a corpse pose), **vajrasana**(kneeling down, sitting on the feet slightly apart, keeping both hands at knees) ; doing **pranayama- Nadi Sodhana**(Inhaling through left nostril and exhaling through right nostril and vice versa), **Shitali Pranayama** (Inhaling through mouth and exhaling through nose) to reduce the level of stress and to improve the quality of sleep among patients with cancer who are undergoing radiation therapy. It is performed **for 20 minutes in groups , daily in the morning and evening for 20 days.**

DEEP BREATHING EXERCISES

Deep breathing exercises refers to any variety of breathing patterns to relax or open emotional channels.

Potter P.et.al.,(2005)

In this study it refers to demonstrating and guiding to practice **deep breathing exercise** (exhale completely through mouth with whoosh sound, inhale for a mental count of 4, hold the breath for a count of 7, exhale completely through mouth for a count of 8) **daily 10 minutes in groups in the morning and evening for 20 days** to reduce the level of stress and to improve the quality of sleep among patients with cancer who are undergoing radiation therapy.

MUSCLE RELAXATION EXERCISES

Muscle relaxation can be achieved by tensing the muscles of the entire body and then releasing the tension or by focussing the attention on the muscles and imaging them being free of tension .

Snyder M.et.al., (2006)

In this study muscle relaxation exercises refers to demonstrating and assisting to practice **tensing and relaxing the whole body muscles for 20 minutes in groups daily in the morning and evening for 20 days** to reduce the level of stress and improve the quality of sleep among patients with cancer who are undergoing radiation therapy.

STRESS

“Stress is a prolonged unpleasant emotional state or psychological and physiological response to events that upset personal balance”

Prabhudeva S.S.,(2008)

In this study, stress means a prolonged psychological and physiological response to events that upset personal balance which is measured by using stress assessment rating scale and its scores, adopted from Herschbach , Keller, Knight.et.al (2004).

SLEEP

“Sleep is a state of altered consciousness during which an individual experience fluctuations in level of consciousness; minimal physical activity and general slowing of the body’s physiologic process”

White L., (2002)

In this study quality of sleep refers to the fluctuations in the normal sleep pattern and reduced sleep latency which is measured by using sleep assessment rating scale and its scores, adopted from Hays.R.D.,& Stewart.A.L.,(1992).

CANCER

Cancer is a mass of tissue formed as a result of abnormal, excessive, uncoordinated, autonomous and purposeless proliferation of cells.

Mohan H., (2000)

PATIENT WITH CANCER

A patient is any person who receives medical attention, care or treatment.

Fayed L., (2009)

In this study it refers to patients who are undergoing radiation therapy for cancer in the stomach, colon/rectum, oesophagus, lungs, breast, prostate, brain, larynx, oral, bladder, uterus, ovary, cervix, skin and lymphoma and are admitted and remained in hospital for a minimum of 20 days.

RADIATION THERAPY

Radiation therapy is defined as the use of high energy ionising rays to damage or kill cancer cells by preventing them from growing and dividing.

Daniels R., (2007)

HYPOTHESES

- H₁** : The mean post test level of stress scores is significantly lower than the mean pre test level of stress scores in experimental group.
- H₂** : The mean post test quality of sleep scores is significantly higher than the mean pre test quality of sleep scores in experimental group.
- H₃** : The mean post test level of stress scores in experimental group is significantly lower than the mean post test level of stress scores in control group.
- H₄** : The mean post test quality of sleep scores in experimental group is significantly higher than the mean post test quality of sleep scores in control group.
- H₅** : There will be a significant relationship between post test level of stress scores and quality of sleep scores among patient with cancer who are undergoing radiation therapy in experimental group.

H₆ : There will be a significant association between post test level of stress scores among patient with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

H₇ : There will be a significant association between post test quality of sleep scores among patient with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

ASSUMPTIONS

- ❖ Patients with cancer may have stress due to the diagnosis and hospitalization for treatment.
- ❖ Patients with cancer experiences sleep disturbance during the course of illness.
- ❖ Nurses plays a vital role in reducing the stress and improving the quality of sleep among patients with cancer.

DELIMITATION

The study is delimited to,

- ❖ Data collection period was only 5 weeks.
- ❖ Sample size was limited to 60.
- ❖ The patient with cancer who are undergoing radiation therapy.

PROJECTED OUTCOME

Practicing multi component intervention can reduce stress and improve the quality of sleep among patients with cancer who are undergoing radiation therapy. It helps to reduce the cost and duration of treatment. Developing positive attitude towards practicing multicomponent intervention will strengthen the immune system of the patients which helps to improve the quality of life and increases the life expectancy.

CONCEPTUAL FRAMEWORK

The conceptual framework and model adopted for the present study was based on **Roy's adaptation model (1984)**. Roy's model focuses on the concept of adaptation of the person. Her concepts of nursing, person, health, and the environment are all interrelated to this central concept. The person continually experience environmental stimuli. Ultimately, a response is made and adaptation occurs. That adaptive response may be either an adaptive or an ineffective response. Adaptive response promotes integrity and helps the person to achieve the goal of adaptation; that is, they achieve survival, growth, reproduction, mastery, person and environmental transformation. Ineffective response fails to achieve or threaten the goals of adaptation.

Nursing has an unique goal to assist the persons adaptation effort by managing the environment. The result is attainment of an optimal level of wellness by a person.

SYSTEM

According to theorist, a system is a set of parts connected to function as whole for some purpose and that does so by virtue of the interdependence of its parts. In addition to having wholeness and related parts, the system also have inputs, outputs, and control and feedback processes.

In this study, the system is the patients diagnosed for cancer and undergoing radiation therapy and the environment is the oncology ward. Both will have a constant interaction with each other.

INPUT

According to theorist, the adaptive system has inputs as behavioral responses that serve as feedback and control process known as coping mechanisms.

FOCAL STIMULI

According to theorist, the focal stimulus is the internal and external stimulus most immediately confronting the human system

In this study the demographic variables like age, sex, educational status (internal factors), occupation, marital status, religion, family monthly income, type of family, area of residence, type of cancer, duration of illness. duration of treatment (external factors) precipitates the level of stress and the level of sleep which is reflected either as adaptive or maladaptive response. The level of stress and the level of sleep may differ due to these internal and external factors.

CONTEXTUAL STIMULI

According to theorist, contextual stimuli are all other stimuli present in the situation that contribute to the focal stimulus. That is, contextual stimuli are all the environmental factors that presents to the person from within or without but which are not the centre of the person's attention and/or energy.

In this study contextual stimuli includes lack of information about cancer and its management, environment of the ward, diagnostic test and treatment, alteration in socialization process.

RESIDUAL STIMULI

According to theorist, residual stimuli are the environmental factors within or without the human system with effects in the current situations are unclear, possible yet uncertain, influencing stimuli, includes beliefs, attitudes, experience, knowledge level, strength and/or limitation.

In this study, the residual stimuli includes the believes, attitude related to cancer.

COPING PROCESS

According to theorist, coping process are innate or acquired ways of interacting with the changing environment.

Acquired coping mechanisms are developed through strategies such as learning. The experience encountered throughout life contributes to customary responses to particular stimuli.

REGULATOR SUB SYSTEM

According to theorist, regulator is a major coping process involving the neural, chemical and endocrine systems.

In this study the maladaptive level of stress and quality of sleep alters the regulator subsystem. In this study the regulator subsystem includes the changes in the sleep pattern, activity level, appetite and elimination.

COGNATOR SUBSYSTEM

According to theorist, cognator is a major coping process involving four cognitive – emotional channels: perceptual and information processing, learning, judgement and emotion.

In this study the maladaptive level of stress and quality of sleep alters the cognator subsystem. The changes in the cognator subsystem can be noted in problem solving, decision making, perception and concentration.

After assessing the level of stress and quality of sleep in both experimental and the control group using the stress assessment rating scale and sleep assessment rating scale the multi component intervention was carried out for the experimental group. Here the multi component intervention was used as the coping mechanism.

ADAPTATION LEVEL

According to theorist, adaptation level represents the condition of the life processes described on three levels as integrated, compensatory and compromised. A person's adaptation level is a constantly changing point, made up of focal, contextual and residual stimuli which represents the person's own standard of range of stimuli to which one can respond with ordinary adaptive responses.

ADAPTATION PROBLEMS

According to theorist, adaptation problems are broad areas of concern related to adaptation. These describe the difficulties related to the indicators of positive adaptation .

ADAPTIVE MODES

❖ PHYSIOLOGICAL MODE

According to theorist, the physiological mode is associated with the physical and chemical processes involved in the functions and activities of living organisms. The five needs identified in the physiological- physical mode relative to the basic need of physiological integrity are oxygenation, nutrition, elimination, activity and rest, and protection. Complex processes that include the senses, fluid, electrolyte and acid- base balance, neurological function and endocrine function contribute to physiological adaptation.

In this study the adaptive response in physical mode is the normal sleep, activity, appetite, elimination.

❖ SELF- CONCEPT – GROUP IDENTITY MODE

According to theorist, the self concept group identity mode focuses specifically on the psychological and spiritual aspects of the human system. The basic need underlying the individual self-concept mode has been identified as psychic and spiritual integrity, or the need to know who is so that one can be or exist with a sense of unity, meaning, and purposefulness in the universe.

In this study the adaptive response in self concept mode is increased self confidence, decreased fear, increased comfort and feeling of adequacy.

❖ ROLE FUNCTION MODE

According to theorist, the role function mode is one of two social modes and focuses on the roles the person occupies in the society. A role as a functioning unit of the society, is defined as a set of expectation about how a person occupying one position behaves towards a person occupying another position. Persons perform primary, secondary, and tertiary roles. These roles are carried out with both instrumental and expressive behaviour.

In this study it refers to improved decision making and problem solving ability.

❖ INTERDEPENDENCE MODE

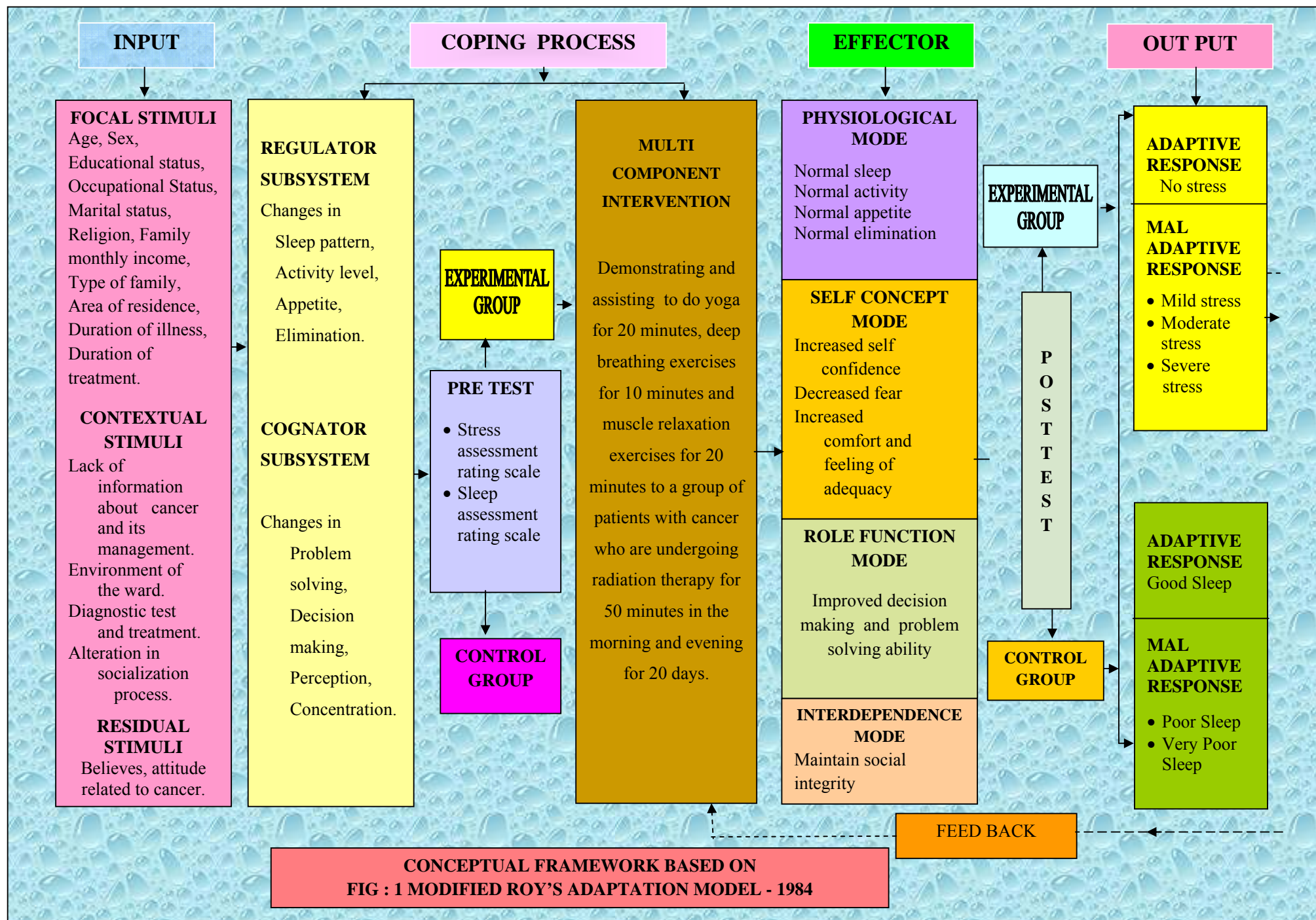
According to theorist, the interdependence mode focuses on close relationship of people. Interdependence relationship involves the willingness and the ability to give to others and accept from them of all that one has to offer such as love, respect, value, nurturing, knowledge skills, commitments, material possessions, time, and talents.

In this study the adaptive response in interdependent mode is to maintain social integrity.

OUTPUT

According to theorist the adaptive system output is a response that may be adaptive or ineffective. Adaptive response is those that promote integrity in terms of the goals of human system. Maladaptive response is those that do not promote goal achievement

In this study the multi component intervention may increase the coping pattern which reflects in the reduction of stress and maintenance of good sleep in the patients with cancer in experimental group which is assessed by using stress assessment rating scale and sleep assessment rating scale respectively, thus showing adaptive response. The patients with cancer in control group show an maladaptive response.



CHAPTER – II

REVIEW OF LITERATURE

This chapter deals with the related review of literature. The literatures are classified under the following headings:

PART I

Overview of

- a) cancer
- b) stress
- c) sleep
- d) other complementary therapies
- e) multi component intervention

PART II

Section A: Studies related to incidence and prevalence of cancer.

Section B: Studies related to level of stress among patients with cancer.

Section C: Studies related to quality of sleep among patients with cancer.

Section D: Studies related to correlation between level of stress and quality of sleep.

Section E: Studies related to effectiveness of multicomponent intervention on stress and sleep among patients with cancer (yoga, deep breathing exercise, muscle relaxation exercise).

Section F: Studies related to nurses role in multicomponent intervention.

PART – I

a) OVERVIEW OF CANCER

INTRODUCTION

Cancer is a group of more than 200 diseases characterized by uncontrolled and unregulated growth of cells. It is a major health problem that occurs in people of all ethnicities. The face of health care including scientific knowledge and care delivery systems is ever changing. Likewise, the experience of cancer is changing for our clients and families cancer remains a frightening unknown for many so clients, especially older ones still associate the word with death.

Lewis., (2011)

DEFINITION

Cancer is defined as a class of diseases in which a cell or a group of cells display uncontrolled growth (division beyond the normal limits), invasion (intrusion on and destruction of adjacent tissues) and sometimes metastasis is (spread to other locations in the blood and body via lymph or blood).

INCIDENCE

More than 1.3 million new cancer are diagnosed in the united states each year. Cancer is second only to cardio vascular disease as a leading cause of death in the United States. Cancer affects people at all ages with the risk for most types increasing with age. It caused about 13% of all human deaths in 2007 (7.6 million).Cancer incidence overall is higher in men than women. Greater than 30% of cancer is preventable via avoiding risk factors including tobacco, overweight, low fruit and vegetable intake, physical inactivity, alcohol, sexually transmitted infections and air pollution.

Mehta.,(2007)

CAUSES

- ❖ 75% of cases due to lifestyle and environmental factors.
- ❖ 5 – 10% due to genetic common environmental factors that lead to cancer death include tobacco (25 – 30%), diet and obesity (30 – 35%), infections, radiation, stress, lack of physical activity, environmental pollutants, heredity.

Brunner., (2008)

CLASSIFICATION OF CANCER

Tumors can be classified according to anatomic site, histology and extent of disease (staging).

CLINICAL STAGING

Stage O	Cancer in situ.
Stage I	Tumor located to the tissue of origin, localized tumor growth.
Stage II	Limited local spread.
Stage III	Extensive local and regional spread.
Stage IV	Metastasis.

TNM CLASSIFICATION SYSTEM

Primary Tumor (T)

T ₀	-	No evidence of primary tumor.
T _{is}	-	Carcinoma in situ.
T ₁₋₄	-	Ascending degrees of increase in tumor size and involvement.
T _x	-	Tumor cannot be measured or found.

Regional Lymph Nodes (N)

N ₀	-	No evidence of disease in lymph node.
N ₁₋₄	-	Ascending degrees of nodal involvement
N _x	-	Regional lymph nodes unable to be assessed periodically.

Distant Metastases (M)

- M_0 - No evidence of distant metastasis.
- M_{1-4} - Ascending degrees of metastatic involvement of the host including distant nodes.
- M_x - Cannot be determined.

Black.,(2010)

PATHOPHYSIOLOGY

Cancer is fundamentally a disease of regulation of tissue growth. In order for a normal cell to transform into a cancer cell, genes which regulate cell growth and differentiation must be altered.

Mutation inactivates tumor suppressor gene which leads to proliferation of cells. Mutation inactivates DNA repair gene. Mutation of proto – oncogene creates an oncogene. Mutation inactivates several more tumor suppressor genes. Thus cancer develops.

PATHOGENESIS OF TUMOR METASTASIS

The primary tumor grows and develops new blood vessels (angiogenesis). These cells enter the circulation via the capillaries, venules and lymphatics and arrest the circulation. It again gets adhered to other organs and penetrates it. Then it again proliferates and angiogenesis occurs which again enters into another organ. This process is called as metastasis.

Lewis., (2011)

COMPLICATIONS

Cancer and its treatment can cause several complications, including pain, fatigue, difficulty breathing, nausea, diarrhea or constipation, unusual immune system reactions to cancer, difficulty walking and seizures.

PROGNOSIS

Cancer has a reputation as a deadly disease. About half of people receiving treatment for invasive cancer die from cancer or its treatment.

Survival is worse in the developing world. Those who survive cancer are at increased risk of developing a second primary cancer at about twice the rate of those never diagnosed with cancer.

DEVELOPMENT OF CANCER

It is a common belief that the development of cancer is a rapid, haphazard event. However, the natural history of cancer is an orderly process comprising of several stages and occurring over a period of time. The three stage includes initiation, promotion, progression.

Lewis., (2011)

SIGNS AND SYMPTOMS

➤ LOCAL SYMPTOMS

The local symptoms of cancer are unusual lumps or swelling, haemorrhage, pain or ulceration.

➤ SYMPTOMS OF METASTASIS

Symptoms of metastasis involve enlarged lymph nodes, cough, hemoptysis, hepatomegaly, bone pain, fracture, neurological symptoms.

➤ SYSTEMIC SYMPTOMS:

It includes weight loss, poor appetite, fatigue, cachexia, excessive sweating, anaemia.

SEVEN WARNING SIGNS OF CANCER

- C - Change in bowel and bladder habits.
- A - A sore that does not heal.
- U - Unusual bleeding or discharge from any body orifice.
- T - Thickening or a lump in the breast.
- I - Indigestion or difficulty in swallowing.
- O - Obvious change in wart or mole.
- N - Nagging cough or hoarseness.

MANAGEMENT

The goal of cancer treatment is cure, control, palliation.

Lewis., (2011)

SURGICAL THERAPY

Surgery is the oldest and effective method of cancer treatment.

CHEMOTHERAPY

Chemotherapeutic drugs are classified in general groups according to the molecular structure and mechanism of action. Chemotherapeutic drugs which are commonly used are, Alkylating agents -Eg.Cyclophosphamide, Nitrosoureas-Eg.Carmustine, Platinum drugs -Eg. Oxaliplatin, Antimetabolites -Eg.Fluorouracil, Antitumor antibiotics - Eg. Bleomycin, Mitotic inhibitors Eg. Vinblastine, Topoisomerase inhibitors - Eg. Etoposide, Corticosteroids Eg. Dexamethasone .

RADIATION THERAPY

Radiation is the emission and distribution of energy through space or a material medium.

TYPES

- ❖ External Beam Radiation therapy
- ❖ Internal Radiation therapy
 - Sealed source radiation therapy
 - Unsealed source radiation therapy

BIOLOGIC THERAPY / IMMUNO THERAPY

Some of the biological agents that are commonly used are hematopoietic stem factors, interferon, interleukin, monoclonal antibodies.

GENE THERAPY

It involves the transfer of exogenous gene into the cells of the patients in an effort to control the defective gene.

BONE MARROW AND STEM CELL TRANSPLANTATION

BMT is the recent technique in treating cancer patients and it is under study.

Black., (2010)

b) OVERVIEW OF STRESS

DEFINITION

Selye (1976), “Stress is the non specific result of any demand upon the body.”

Folkman and Lazarus (1984), “stress is a relationship between the person and the environment that is appraised as taxing or surpassing available resources and threatening one’s well being”.

SELYE’S THEORY OF STRESS

In 1936, Selye experimenting with animals first described a syndrome consisting of the enlargement of adrenal cortex, thymus, spleen and lymph nodes and other lymphatic structures and the appearance of deep bleeding, ulcers in the stomach and duodenum. He identified this as a non specific response to diverse, noxious stimuli. He diagnosed and titled, ‘The General Adaptation syndrome’.

The GAS has three stages.

STAGES OF ALARM REACTION :-

This is the stage where “fight or flight” response is initiated and release of hormones takes place.

STAGE OF RESISTANCE

In this stage physiologic forces are mobilized to increase the resistance to stress, they will develop defense mechanism due to increase cortical activity.

STAGE OF EXHAUSTION

This occurs when all the energy for adaptation has expended. Exhaustion sets in and endocrine activity increases. This is exemplified by a terminal ill person who becomes alert and has stronger vital signs shortly before death.

Basavanthappa., (2004)

CAUSES

➤ PHYSIOLOGIC

The physiologic causes of stress are skin burn, chronic pain hypothermia, infectious disease, excessive noise, starvation, running, birth of a baby.

➤ PSYCHOLOGIC

The psychologic causes of stress are diagnosis of cancer, marital problem, failing an exam, inadequate finance, grieving the loss, winning or losing .

Taylor., (2005)

TYPES OF STRESS

The common types of stress acute stress and chronic stress.

SYMPTOMS OF STRESS

The physical symptoms of stress are fatigue, head ache, insomnia, chest pain, palpitation, flushing. The mental symptoms of stress are decreased memory concentration, indecisiveness, confusion. The emotional symptoms of stress are anxiety, nervousness, depression, anger, frustration. The behavioural symptoms of stress are smoking, drinking, crying.

White., (2005)

PHYSIOLOGIC RESPONSE TO STRESS

Cerebral cortex processes the stress stimuli. Limbic system is activated and relays information to hypothalamus which releases the neuropeptides. Pituitary gland and SNS gets activated and releases ACTH and endorphins

which releases catecholamines and corticosteroids which in turn inhibits the immune system leading to stress.

Potter., (2005)

MANAGEMENT FOR STRESS

The relaxation techniques used to relieve stress are realistic expectations, reframing, relaxation breathing, meditation, imagery, music therapy, massage, muscle relaxation techniques, yoga, light therapy, hypnosis, breathing exercise, humour/laughter therapy, diversion and distraction, acupuncture.

Lewis., (2011)

c) OVERVIEW OF SLEEP

INTRODUCTION

Proper rest and sleep are as important to good health and nutrition and adequate exercise. Individuals need different amounts of rest and sleep. Without proper amount of rest and sleep, the ability to concentrate, make judgements and participate in daily activities decreases and irritability increases. Identifying and treating client's sleep pattern disturbance is an important goal for a nurse.

DEFINITION OF SLEEP

Sleep is a recurrent, altered state of consciousness that occurs for sustained periods.

When people obtain proper sleep, they feel that their energy has been restored. Some sleep experts believe that these feelings of energy restoration imply that sleep provides time for repair and recovery of body systems for the next period of wakefulness. A lack of rest for long periods can cause illness or worsening of existing illness.

Potter., (2005)

PHYSIOLOGY OF SLEEP

Sleep is a cyclical physiological process that alternates with longer periods of wakefulness. The sleep wake cycle influences and regulates physiological function and behavioural responses. People experience cyclical rhythms as part of their everyday life. The most familiar rhythm is the 24-hour, day-night cycle known as the circadian rhythm. Circadian rhythms are affected by light and temperature as well as external factors such as social activities and work routines.

Two mechanisms activate and suppress the brain's higher stem centers to control sleep and wakefulness. The reticular activating system (RAS) is located in the upper brain stem. It is believed to contain special cells that maintain alertness and wakefulness. Wakefulness results from neurons in the RAS that release catecholamines such as norepinephrine.

Sleep may be produced by the release of serotonin from specialized cells in the Raphe sleep system of the pons and medial forebrain. This area of the brain is also called the bulbar synchronizing region (BSR). As people try to sleep, they close their eyes and assume relaxed positions; stimuli to RAS decline. If the room is dark and quiet, activation of the RAS further declines. At some point BSR takes over, causing sleep.

White., (2005)

STAGES OF SLEEP

Sleep phases are classified as non rapid eye movement (NREM) and rapid eye movement (REM).

NREM SLEEP

The first phase of sleep is called NREM sleep and consists of four stages

Stage 1

Stage 1 sleep is a light sleep, in which muscles relax and brain waves are rapid and irregular. Stage 1 usually lasts for 10 minutes or so. It is easy to awake.

Stage 2

Stage 2 sleep is still fairly a light sleep. Brain waves become larger with bursts of electrical activity. Half of normal adult sleep may be spent in stage 2. After 20 minutes or so in stage 2, deep sleep is entered.

Stage 3 and stage 4

Stage 3 and stage 4 sleep are usually discussed together because they are difficult to identify and separate. Stage 3 is a medium- deep sleep and stage 4 is the deepest sleep. Each stage lasts for 15 to 30 minutes. During these stages large, slow waves are seen on the EEG. Vitals signs are significantly lower than when awake. It is difficult to awaken a person in this stage of sleep.

About 75% of sleep is NREM sleep.

REM SLEEP

After the first 60 to 90 minutes of NREM sleep in adult, the individual enters rapid eye movement or REM sleep. The brain waves are almost the same as when awake. This is a highly active time with REM, heart rate, respiratory rate and blood pressure similar to when awake and muscles are flaccid, making the body paralyzed. This is the time when dreams occur. About 25% of sleep is REM sleep, with REM sleep periods becoming longer as the night goes on.

Taylor., (2005)

SLEEP CYCLE

The sleep cycle is the sequence of sleep beginning with the four stages of NREM sleep, a return to stage 3 and then to stage 2 followed by the first REM sleep. The duration of the sleep cycle is usually 60 to 90 minutes and the sleeper will generally go through 4 to 6 sleep cycles during a sleep period of 7 to 8 hours. The length of the NREM and REM periods of sleep change as the

sleep period progresses and dreams during REM sleep may become more vivid and intense. Whenever the sleep cycle is broken, a new sleep cycle starts, beginning again at NREM sleep stage 1.

FACTORS AFFECTING SLEEP

Several factors can influence the quality and quantity of both rest and sleep. Often, sleep problems result from a combination of many factors. Physical factors like chronic illness that causes pain, discomfort or mood problems, psychological factors like anxiety, depression, environmental factors like temperature, lighting, ventilation, noise, odour, lifestyle stressors like rotating shift duties, dietary factors like spicy diets, caffeine, medications and other substances like alcohol, nicotine, other factors like aging, exercise and fatigue affects the normal sleep of a person.

Taylor., (2005)

SLEEP RELATED PROBLEMS IN CANCER PATIENTS

Majority of studies that have assessed both sleep and fatigue in patients with cancer provide evidence supporting a strong correlation between cancer-related fatigue and various sleep parameters, including poor sleep quality, disrupted initiation and maintenance of sleep, night time awakening, restless sleep, and excessive daytime sleepiness.

Fatigue and sleep disturbance are two of the most frequent side effects experienced by patients with cancer. Although sleep disruption is common in these patients, it has been a neglected problem. This is partly because it has been seen as a normal and transient reaction to cancer and cancer treatment, and partly because of the underreporting of sleep disturbances by patients. Patients with cancer report insomnia, poor sleep quality, and short sleep duration. On testing, they are frequently found to have low sleep efficiency (the ratio of time asleep to total time in bed). Precipitating factors for insomnia in patients with cancer include the diagnosis of cancer, the type and stage of

cancer, pain, side effects of treatment (e.g., nausea, vomiting, etc.) and/or the direct iatrogenic effects of treatment on sleep.

Maralyn.et.al.,(2007)

d) OVERVIEW OF OTHER COMPLEMENTARY THERAPIES

Complementary therapy is used along with standard or mainstream medical treatment. Some complementary therapies may help relieve certain symptoms of cancer, relieve side effects of cancer treatment, or improve a patient's sense of well-being.

COMPLEMENTARY THERAPIES USED WITH CANCER TREATMENT

- **Acupuncture:** Acupuncture is a technique in which very thin needles are put into the body to treat a number of symptoms. It may help with mild pain and some types of nausea.
- **Aromatherapy:** Aromatherapy is the use of fragrant substances, called essential oils, that are distilled from plants to alter mood or improve symptoms such as stress or nausea.
- **Art therapy:** Art therapy is used to help people with physical and emotional problems by using creative activities to express emotions. This is done by mainstream therapists with specialized training.
- **Biofeedback:** Biofeedback is a treatment method that uses monitoring devices to help people gain conscious control over physical processes that are usually controlled automatically, such as heart rate, blood pressure, temperature, sweating, and muscle tension.
- **Labyrinth walking:** Involves a meditative walk along a set circular pathway that goes to the center and comes back out. Labyrinths can also be “walked” online or on a grooved board following the curved path with a finger.

- **Massage therapy:** Massage involves manipulation, rubbing, and kneading of the body's muscle and soft tissue. Some studies suggest massage can decrease stress, anxiety, depression, and pain and increase alertness.
- **Meditation:** Meditation is a mind-body process in which a person uses concentration or reflection to relax the body and calm the mind.
- **Music therapy:** Music therapy is offered by trained healthcare professionals who use music to promote healing and enhance quality of life.
- **Prayer and spirituality:** Spirituality is generally described as an awareness of something greater than the individual self. It's often expressed through religion and/or prayer, but there are many other paths of spiritual pursuit and expression.
- **Tai chi:** Tai chi is an ancient Chinese martial art. It's a mind-body system that uses movement, meditation, and breathing to improve health and well being. It has been shown to improve strength and balance in some people.

Snyder M. et.al.,(2006)

e) OVERVIEW OF MULTICOMPONENT INTERVENTION

Multi component intervention programme includes yoga, deep breathing exercises and muscle relaxation exercises.

YOGA

Yoga is a great physical as well as mental science that serves not only the purpose to provide strength to the body but also to the brain. It has powers as healing particularly due to the property that it reinforces the immune system. For individual suffering from cancer yoga can be a real source of empowerment. In yoga physical postures are regularly practiced as asanas. That not only stimulates but also brings a balance in all the systems in the body may it be respiratory, circulatory, reproductive, digestive, nervous, endocrine,

muscular, and urogenital. When imbalance of functions occurs a number of asanas can be practiced regularly to bring back the balance.

YOGA FOR CANCER

Yoga helps cancer patients to get rid out of the trauma that accompanies the diagnosis. Any individual suffering from cancer suffers a severe mental shock and depression etc., According to yoga the effortless breathing techniques, relaxations, and meditation techniques can help a patient to deal with it. This is also helpful in dealing with the anxiety of surgery, chemotherapy and radiation therapy.

BENEFITS OF YOGA

Cancer is a very broad and complex illness which results in the weakening of the immune system that cannot cope up with the proliferation of the damaged cells. Therefore yoga strengthens the immune system and encourages the inner healing forces in various ways as following:

- Through relaxation it calms down the nervous system decreasing the stress and anxiety which resulted in lowering of immune functioning
- Through breathing exercise by improving the respiration rate releasing out the tension and restoring the balance and calmness.
- Through meditation it helps to develop clarity of thoughts that enables to acknowledge and accept the reality and cope up with fears.
- Through physical postures it helps to clear out the toxins, increasing the energy levels enhancing the functioning of internal organs and systems.

Vethathiri., (2009)

YOGA ASANAS

PADMASANA

Also called as lotus yoga pose.

Steps:

- a) Sit on the mat/ sheet with legs crossed, spine long and extended

- b) Take the right foot and place the ankle along the inside of the left thigh and take the left foot and place the ankle along the inside of the right thigh.
- c) Place the hands on the thighs and make the tip of thumb touches the tip of the index finger and sit in a meditation state. Continue it for 4 minutes.

SIDDHASANA

Steps

- a) Sit with legs stretched forward.
- b) Bend the left leg and place it near the perineum. The sole of the left foot is placed under the right thigh.
- c) Bend the right leg, place the right foot over the left ankle, and the heel of the right foot at the root of the genitals.
- d) Maintain the spine, neck and head in a straight, upright posture.
- e) Place both hands near the thigh joints, slightly bend at elbows on either side, join the index fingers and thumbs respectively and sit in a meditation state.

SUKHASANA

Steps:

- a) Sit down on the mat/ sheet.
- b) Stretch the legs in front.
- c) Keep the head, neck and spine erect.
- d) Fold the left leg at the knee and bring it closer to the body.
- e) Lift the right knee and slide the left foot under the right thigh. The sole of the left foot should be turned up.
- f) Similarly, fold the right leg and put the right foot under the left calf.
- g) The sole should be tilted up and the foot should support the left shin.
- h) Place the hands on the thighs and make the tip of thumb touches the tip of the index finger and sit in a meditation state

VAJRASANA:

Steps:

- a) With knees, ankles and big toes touching the ground, take a kneeling position.
- b) Sit on the heels and place palms on the knees.
- c) The spine should be erect and take deep breaths.
- d) Continue it for 3 minutes.

SAVASANA:

Steps:

- a) Start by sitting straight up, legs extended together in front.
- b) Softly roll the back vertebrae by vertebrae on to the floor, forming a straight line with the body.
- c) Slowly move the feet apart a little wider than the hips.
- d) Place the arms out to the sides of the body, facing the palms upwards. Take deep breaths.
- e) Continue it for 3 minutes.

Vethathiri., (2009)

PRANAYAMA

Pranayama techniques are best practiced while sitting on the floor on a folded blanket. One must empty the bladder and bowels before starting pranayama yoga. The place suitable for yoga must be clean and calm.

TYPES OF PRANAYAMA

- ❖ Nadi Sodhana
- ❖ Shitali Pranayama
- ❖ Ujjayi Pranayama
- ❖ Kapalabhati Pranayama
- ❖ Digra Pranayama
- ❖ Bhastrika Pranayama
- ❖ Bahya Pranayama

- ❖ Bhramari Pranayama
- ❖ Udgita pranayama

Nadi Sodhana

Steps :

- a) Sit in Padmasana, Siddhasana or Sukhasana on a carpet or blanket.
- b) Keep the waist, back, neck and spine erect.
- c) Sit peacefully and breathe normally.
- d) Close the eyes. Close the right nostril with the right thumb.
- e) Inhale slowly through the left nostril and fill the lungs.
- f) After complete inhalation, press the left nostril with the ring finger of the right hand and close the left nostril.
- g) Open the right nostril, exhale and breathe slowly out.
- h) After complete exhalation, again inhale through the right nostril and fill the lungs.
- i) Close the right nostril by pressing it with the right thumb.
- j) After opening the left nostril, breathe out slowly.
- k) Continue doing this exercise for around 10 - 15 times in 4 minutes.

Shitali Pranayama

Steps:

- a) Sit in a comfortable position with legs and take five deep breaths.
- b) Open the mouth in a "o" shape and start to inhale through the mouth.
- c) Exhale with the nose.
- d) Repeat this exercise for five to ten times in 4 minutes

Vethathiri., (2009)

DEEP BREATHING EXERCISES

The 4-7-8 (or relaxing breath) Exercise

The exercise takes almost no time or equipment and can be done anywhere.

Steps:

- a) Sit in a comfortable position.
- b) Place the tip of the tongue against the ridge of tissue just behind the upper front teeth.
- c) Exhale completely through the mouth, with whoosh sound.
- d) Close the mouth and inhale quietly through the nose to a mental count of 4.
- e) Hold the breath for a count of 7.
- f) Exhale completely through the mouth, making a whoosh sound to a count of 8.
- g) Do the exercise for 10 minutes.

Weil.A.,(2010)

DEEP BREATHING EXERCISES FOR CANCER

Deep, rhythmic breathing expands the diaphragm muscle, expanding the lung's air pockets, invoking the relaxation response, and massaging the lymphatic system. Blood is pumped around the body by the heart, transporting nutrients and oxygen to the cells. Once the cells have absorbed what they need, they excrete debris and toxins, which then get flushed and deactivated by lymphatic fluid. Lymphatic system relies on the act of breathing and bodily movement to move all that waste fluid around. The expansion and contraction of the diaphragm actually stimulates the lymphatic system. The sympathetic nervous system, which is stimulated in times of stress and anxiety, controls the fight or flight response, including spikes in cortisol and adrenaline that can be damaging when they persist too long. Chronic stress depletes the body of nutrients and destabilizes brain and endocrine chemistry. This is counteracted by the parasympathetic nervous system which is activated during deep breathing techniques.

Pick., (2006)

BENEFITS OF DEEP BREATHING EXERCISE:

- Deep breathing reduces stress.
- Deep breathing releases endorphins which relieves head aches, sleeplessness, backaches and other stress related aches and pains.
- Deep breathing helps to clear and focus mind.
- Deep breathing strengthens weak abdominal and intestinal muscles.

MUSCLE RELAXATION EXERCISE

- ❖ Feel the difference while tensing and relaxing different muscle groups.
- ❖ Tense every muscle group for 5-10 seconds and relax it for 10 seconds.

Steps

- a) Sit in a comfortable chair.
- b) Bring attention to left hand. Clench left hand to make a fist and then relax it. Repeat this for 2 times.
- c) Bring attention to right hand. Clench right hand to make a fist and then relax it. Repeat this for 2 times.
- d) Bend both hands back at the wrists. Repeat this for 2 times.
- e) Make a tight fist with both hands, and pull hands toward shoulders. Repeat this for 2 times.
- f) Shrug the shoulders Hold it, then relax the shoulders. Repeat this for 2 times.
- g) Wrinkle forehead. Tense those muscles and then relax. Repeat this for 2 times.
- h) Close the eyes as tightly as possible. Feel the tension all around the eyes. After holding this state, then relax. Repeat this for 2 times.
- i) Clench the jaw, biting the teeth together. Then relax. Repeat this for 2 times.

- j) Press the lips together as tightly as possible. Now relax the lips. Repeat this for 2 times.
- k) Bring attention to the neck. Put the head back and press the back of the head against the back of the chair and then relax. Repeat this for 2 times.
- l) Bring head forward. Push chin against the chest. Hold it, then relax. Repeat this for 2 times.
- m) Arch back, sticking out the chest and stomach. Then allow those muscles to become loose. Repeat this for 2 times.
- n) Tense the stomach muscles and then relax it. Repeat this for 2 times.
- o) Bring attention to legs. Lift up and stretch them out. Feel the tension in the thighs. Then, let legs drop, relaxing the thigh muscles. Repeat this for 2 times.
- p) Point the toes upward. Tense both the calf muscles. Then, let them relax. Let the feet fall. Repeat this for 2 times.
- q) Scan the different muscle groups covered, and bring attention to any lingering muscle tension. If tension exists over any muscle groups, bring relaxation to those muscle groups and then relax it. Repeat this for 2 times.

TIPS

1. Sit in a comfortable chair.
2. Bring awareness to the feelings of tension and relaxation. Pay attention to the feelings and notice the muscles feel when moving from tension to relaxation.
3. Practice regularly. Do at least two cycles of tension – relaxation for each muscle group.

GUIDELINES

1. Practice at least 20 minutes per day. Two 20 minutes periods are preferable.
2. Find a quiet location to practice.
3. Practice at regular times. On awakening, before retiring, or before meals are generally the best times. A consistent daily relaxation routine will increase the likelihood of generalization effects.
4. Practice on an empty stomach. Food digestion after meals will tend to disrupt deep relaxation.
5. Assume a comfortable position. The entire body including head should be supported. Lying down on a sofa or bed or sitting in a reclining chair are two ways of supporting the body most completely.
6. It is advantageous to experience the full depth of the relaxation response consciously without going to sleep.
7. Loosen any tight clothing and take off shoes, watch, glasses, contact lenses, jewellery, and so on.
8. Make a decision not worry about anything.

Tull M.,(2009)

BENEFITS OF MUSCLE RELAXATION EXERCISE

The beneficial effects of muscle relaxation are,

- Reduction in stress
- Returns heart beat to normal
- Reduction in aches and pains
- Reduction in the effect of phobia
- Helps counter insomnia
- Helps control and reverse the effects of certain difficult to treat ailments
- Improves concentration

Matthew.,(2011)

PART –II

SECTION A: STUDIES RELATED TO INCIDENCE AND PREVALENCE OF CANCER

Francisci et.al., (2003) conducted a study about the prevalence of cancer in central European countries like Austria, Netherlands, Germany, Poland, Slovakia, Slovenia, Switzerland covering a population of 13 million inhabitants. The sample size is 465000 cases of cancer. The weight of 1 year prevalence was < 15% of total prevalence. Prevalent cases between 1 to 5 years since diagnosis represented 22% to 34% of the total prevalence. Prevalent cases between 5 to 10 years since diagnosis represented 17% to 23% of the total prevalence. Finally cases diagnosed > 10 years before range between 26% and 50%.

Forman et.al., (2003) investigated the cancer prevalence in the UK. 8 cancer registries in UK provided data based on > 1.5 million cases of cancer. Total prevalence was calculated using methods based on modelling incidence and survival trends. Approximately 1.5% of males and 2.5% of females in the UK population are living with cancer. Approximately 7.5% of people aged >65 years in the UK population are living with cancer. For males half of prevalent cases had been diagnosed >5 years and 30% are > 10 years and in females 60% of prevalent cases had been diagnosed >5 years and 40% are > 10 years .

Tanuja .et.al.,(2007) conducted a study regarding cancer incidence among Indians residing in different geographic regions around the world. Incidence rates were obtained for India from Globocan 2002. The study concluded as the lowest total cancer incidence rates in India (111 and 116 per 100000 among males and females, respectively, and the highest among US whites (362 and 296 per 100000 among males and females, respectively). Cancer incidence rates among Indians residing outside of India were intermediate Singapore (102 and 132 per 100000 among males and females respectively), UK (173 and 179 per 100000 among males and females respectively)

Deepak Ganjewala.,(2009) conducted a study towards trends of prevalence of cancer in Madhya Pradesh (MP), Uttar Pradesh, (UP) and Rajashtan (RJ). Both male and female patients from the area included in the study with cancers admitted during 1st to 30th April, 2005 at Cancer Hospital and Research Institute, Gwalior was examined. 43 including 16 males and 27 females were admitted. The study findings showed that 41% and 51% patients were in age group 25-50 and 50-75 years, respectively. Of 41% patients in age group 25-50 years, 37% were female whereas in age group 50-75 years 30 of 51% were males.

Putila.et.al.,(2009) conducted a study Association of Arsenic Exposure with Lung Cancer Incidence Rates estimated from respective state-wide cancer registries and the SEER database in the United States. Poisson regression was used to determine the association between each variable lung cancer incidence. ANOVA was used to assess interaction effects between covariates. Sediment levels of arsenic were significantly associated with an increase in incident cases of lung cancer ($P<0.001$). These effects persisted after controlling for smoking and income ($P<0.001$). Across the U.S., exposure to arsenic may contribute to up to 5,297 lung cancer cases per year. There was also a significant interaction between arsenic exposure levels and smoking prevalence ($P<0.05$).

Delphine.et.al.,(2010) conducted a study about the correlation between Human Papillomavirus prevalence and cervical cancer incidence .Cervical cancer incidence data were extracted from a cancer registry covering the surrounding or nearby area of the prevalence survey. 13 areas were included in this analysis. The relation between high-risk HPV prevalence and cervical cancer incidence was investigated within 10-year age groups from age 25 to 65 years. A Poisson regression model was used to predict cervical cancer incidence from HPV prevalence, and the strength of the correlation was assessed using Spearman's rank correlation coefficient. The rank correlation was weakest in women ages 25 to 34 years and strongest in women ages 55 to 64 years

Watling. et.al.,(2010) conducted a study in Scotland to analyse the effects of prevalence and incidence screening on uptake and detection of cancer using faecal occult blood testing. The design used was Design Analysis of prevalence and incidence screening. The positive predictive value of a positive faecal occult blood test result for cancer was 11.0% for prevalence screening, 6.5% for the first incidence screen and 7.5% for the second incidence screen.

Day LW.,(2011) conducted a study to determine Colo Rectal Cancer (CRC) screening prevalence and to calculate CRC incidence among American Indian/Alaska Natives (AI/AN) in San Francisco. A retrospective cohort study was done. The sample size was 142,051. The study results were CRC was more common among women than men and among AI/AN living in the Alaska region compared to the Pacific Coast region.

Thammakumpee K. et.al., (2007) conducted a study to assess the clinical manifestation, diagnostic investigation, treatment, and survival of patients with small-cell lung cancer (SCLC). Retrospective study design was adopted. 116 evaluative SCLC patients were enrolled. SCLC was common in elderly men who smoked. Major symptoms were cough 81%, weight loss 72%, and dyspnea 67%. Hoarseness and superior vena cava syndrome (SVC syndrome) were present in 18% and 17% respectively. 49 patients (42%) presented with limited-stage disease and 67 (58%) with extensive-stage disease. 30 patients (26%) received chemotherapy alone, 23 patients (20%) received radiotherapy alone, 33 patients (28%) received combined chemoradiotherapy, and 30 patients (26%) received supportive treatment. The overall response to chemotherapy was complete remission in 12 cases (19%), and partial response in 20 cases (32%).

SECTION B: STUDIES RELATED TO LEVEL OF STRESS AMONG PATIENTS WITH CANCER

Sehlen.et.al, (2003) conducted a study to investigate stress in different tumor patients by means of a cancer-specific questionnaire in the course of radiotherapy. Disease-specific aspects of psychosocial stress (Herschbach's Questionnaire on Stress in Cancer Patients, QSC) were self-assessed by 265 patients with different tumor types (157 male, 108 female; median age 58.6 years) Significant increases in stress were observed ($p < 0.001$). Women showed significantly higher stress, younger patients displayed a decrease in anxiety, whereas elderly patients demonstrated an increase. Breast cancer patients had the highest stress levels.

Akechi T.et.al.,(2004) conducted a study to elucidate the psychological distress of terminally ill cancer patients. This study attempted to determine the prevalence of adjustment disorders (AD), major depression (MD) and post traumatic stress disorder (PTSD) among terminally ill cancer patients. 209 consecutive terminally ill cancer patients were selected The proportions of patients diagnosed with AD, MD, and PTSD were 16.3%, 6.7%, 70% respectively. The factors underlying psychological distress are multifactorial.

Namiki S.et.al.,(2007) conducted a study to investigate the level of psychological distress of Japanese men with localized prostate cancer following surgery or radiotherapy. The study was a retrospective cross-sectional survey of 253 men following radical prostatectomy and 87 with radiotherapy were collected. The results after logistic regression modelling analysis showed a mean anxiety and depression scores as 4.0 and 4.7 respectively. For anxiety 291 patients (85%) scored 7 points or less and on the depression scale 183 patients (54%) scored 4 points or less. The cases with psychological distress scored lower in all domains of health related quality of life. This showed that Japanese men with localized prostate cancer following surgery or radiotherapy had severe psychological distress.

Mosher C.E.et.al.,(2010) conducted a study to document the prevalence of distress among metastatic breast cancer patients. This study used the one item Distress Thermometer (DT) with cut off score >4. A total of 173 metastatic breast cancer patients rated their distress on the DT. 60% met the cut off criteria. Meeting this cut off was not associated with age, ethnicity, time since diagnosis or medical treatments. 61% had anxiety and depression, fatigue and sleep disturbance, with 70% reporting decrements in sleep quality. Results point to a high prevalence of distress, sleep problems, fatigue across metastatic breast cancer patients.

SECTION C: STUDIES RELATED TO QUALITY OF SLEEP AMONG PATIENTS WITH CANCER

Davidson J.R.et.al., (2002) conducted a cross sectional survey study to examine the prevalence of reported sleep problems in patients attending 6 clinics at a regional cancer centre using a brief sleep questionnaire. The sample size was 982. Mean age of respondents was 64.9 years (SD \pm 12.5). The most common prevalent problems were excessive fatigue (44%), insomnia (31%) and excessive sleepiness (28%). Chi square tests showed significant variation. The breast clinic had the high prevalence of insomnia and fatigue. Insomnia involved multiple awakenings (76% of cases). In a multivariate logistic regression analysis showed that the contributors of insomnia were thoughts, concerns and pain/ discomfort.

Davis J.E., (2010) conducted study on “A comparison of disrupted sleep patterns in women with cancer-related fatigue and postmenopausal women without cancer” at United states in which the global sleep quality and state anxiety were self-reported by 30 fatigued female breast cancer chemotherapy outpatients using Pittsburgh Sleep Quality Index (PSQI). Result showed that fatigued breast cancer patients showed significant sleep difficulties, characterized by prolonged sleep onset latency (M=54.3, SD \pm 49.2min) and

frequent nighttime awakenings, despite 40% of the patients using sleep medications three or more times a week.

Delgado M.et.al.,(2011) conducted a study to find the association between self reported sleep disturbance and other symptoms in patients with advanced cancer. 101 patients with advanced cancer underwent randomised clinical trials. The Pittsburgh sleep quality index (PSQI) and Edmonton Symptom assessment scale (ESAS) were used. The PSQI score was correlated with the ESAS items of pain ($r=0.27$), dyspnea ($r= 0.25$), well being ($r= 0.35$) and sleep($r= 0.44$). The study concluded that sleep disturbance is associated with increased frequency of pain, depression, anxiety, and a worse sense of well-being.

SECTION D: STUDIES RELATED TO CORRELATION BETWEEN LEVEL OF STRESS AND QUALITY OF SLEEP

Palesh.et.al.,(2007) conducted a study among 93 women with metastatic breast cancer in a large intervention trial examining the effect of the breathing and relaxation exercises on their symptoms. They completed measures of life stress, and sleep disturbance at baseline, 4, 8 and 12 months. Greater life stress at baseline predicted more problems getting to sleep and more daytime sleepiness. Changes in number of hours of sleep was correlated with changes in problems getting to sleep ($r = -0.26$, $p < 0.01$), and changes in daytime sleepiness ($r = -0.21$, $p < 0.05$). This showed that there is a correlation between stress and sleep disturbance .

Vadiraja et.al.,(2009) conducted a study to assess the psychological distress in breast cancer patients with metastases and their circadian rhythms of sleep and stress hormones and the effectiveness of yoga intervention. 66 breast cancer survivors with metastatic disease and adequate performance status. Paired “ t” test (16.02) showed significant decrease in salivary cortisol in yoga group ($p < 0.01$) alone. The results offered preliminary support for stress reduction benefits of yoga intervention and the psychological distress is high in breast

cancer patients with metastases and affects their circadian rhythms of sleep and stress hormones.

SECTION E: STUDIES RELATED TO EFFECTIVENESS OF MULTICOMPONENT INTERVENTION ON STRESS AND QUALITY OF SLEEP AMONG PATIENTS WITH CANCER (YOGA, DEEP BREATHING EXERCISE, MUSCLE RELAXATION EXERCISE)

Michael Speca .et. al., (2000) investigated the effects of participation in yoga on mood disturbance and symptoms of stress in cancer outpatients. A randomized, wait list controlled design was used. 90 patients (mean age, 51 years) completed the study. After the intervention, patients in the treatment group had significantly lower score on total mood disturbance and lower overall symptoms of stress. Overall reduction in total mood disturbance was 65%, with a 31% reduction in symptoms of stress. This study concluded that the programme was effective in decreasing mood disturbances and stress symptoms in both male and female patients with a wide variety of cancer diagnoses, stages of illness and ages.

Karin.et.al.,(2001), conducted a study to assess the effectiveness of relaxation training in reducing treatment related symptoms and improving emotional adjustment in cancer patients. A meta analytic study was done with 15 studies. The statistical analysis was done with the aid of D-STAT progressive muscle relaxation was used in 87.5% of the interventions. In 11 studies PMR was combined with guided imagery. The significance level was set at $p < 0.05$. In 86.66% of studies patients were instructed or suggested to practice relaxation at home. The studies point to a significant effect of relaxation on the reduction of tension on the mood. Intervention features of relaxation training, the time the professional spent with the patient and the schedule of intervention were relevant to the effect of relaxation on stress.

Khurshid S.J., (2003) conducted a study to determine the effect of muscle relaxation therapy on stress level of cancer breast patient in selected hospitals. A non probability convenience sampling technique was used. Data was collected from 40 patients. A Likert scale containing 50 items was developed. Two group pre test, post test experimental design was used. The major findings of the study were, majority of the patients were between the age group of 31 to 50 years. Relaxation therapy showed significant decrease in stress level of cancer patient in experimental group. Analysis of data for 't' value at 0 .05 level of significance revealed that the calculated value (2.09) are more than table value. The Independent 't' value was 9.2 which was significant at $p < 0.05$ level. Analysis of data for 't' value at $p < 0.05$ level of significance revealed that the calculated value are more than table value.

Paul Grossman et.al., (2004) investigated a meta analysis study which aimed to assess the effect of mindfulness based stress reduction that employs yoga to alleviate suffering associated with physical, psychosomatic and psychiatric disorders. Overall investigation data is gathered from 20 investigations. Cohen's effect size was calculated by dividing the mean difference with their standard deviation. Individuals receiving mindfulness training entered the data set. The mean effect size is, $d = 0.50$ for mental health. and the mean effect size is, $d = 0.42$ for mental health. The result studies shows that the use of yoga might enhance general features of coping with distress and disability in everyday life or stress.

Michael A.et.al, (2004) conducted a study on reductions of cancer specific thought intrusions and anxiety symptoms with stress management intervention (muscle relaxation, guided imagery among 199 women with breast cancer. There were no significant differences in terms of cancer duration ($\chi^2 = 6.60$, $df=3$), marital status ($\chi^2 = 0.82$, $df=1$). The effect of condition on distress was most evident, where the difference was significant ($Z = 2.63$, $P < 0.01$; Cohen's $d = 0.43$). The study concluded that group based stress

management intervention is a clinically useful adjunct to offer to women treated for breast cancer.

Cohen L.et.al.,(2004) suggests that stress reduction programme including yoga, regulated breathing, visual imagery and meditation tailored to the cancer setting help patients cope with the effect of treatment and improve the quality of life. The researcher used 39 patients with lymphomas who were undergoing treatment or who had concluded treatment within twelve months. The patient were made to participate in 7 weekly yoga sessions and patients in the wait-list control group were free to participate in the programme after 3 month follow up assessment. The study result was 89% of the participants completed atleast 2-3 yoga session and 58% of the participants completed atleast 5 yoga sessions. The experimental group reported significantly lower sleep disturbance score during follow up compared with patients in wait list control group. This concluded better subjective sleep quality, faster sleep latency and longer sleep duration and less use of sleep medication.

Kochupillai V.et.al., (2005) states stress which is a psychological process acts through the immune-neuroendocrine axis and affects the cellular process of the body and immune function, leading to disease states including cancer. Rhythmic breathing processes are known to reduce stress and improve immune function. Cancer patients who had completed the standard therapy were studied. The researcher increased the natural killer cells significantly ($p < 0.001$) at 12 and 24 weeks of the practice compared to the baseline. Increase in natural killer cells at 24weeks were significant ($p < 0.05$) compared to controls. The researcher helped to control the tobacco habit in 21% of individual who were followed upto 6 months of practice. Thus the researcher concluded that the breathing processes demonstrated a increase in natural killer cells and reduction in tobacco consumption.

Wilson R.W.et.al., (2006), conducted a study to assess the effectiveness of deep breathing and active relaxation for cancer patients. 39 patients with a variety of solid tumors volunteered for the study. Randomised clinical trial

design was used. Participants were advised to exercise 20 – 40 min of the stress management techniques, deep breathing (38%) and active relaxation (37%) was used by the patients. Paired 't' test comparing baseline value with final recorded values, indicated a significant improvement over time in mental health ($p < 0.05$). Subscale score participants evaluations of the combined intervention were favourable 90% felt it was helpful for them and 100% would recommend it to other patient.

Andersen Barbara. et.al., (2007) conducted clinical trial tests whether a psychological intervention (progressive muscle relaxation exercise, positive ways to cope, effective use of social support) for cancer patients can reduce patients emotional distress and enhance their functional immunity. 227 breast cancer patients were randomized to intervention. Descriptive analysis and ANOVA statistics was done. A path model revealed that intervention participation directly improved health ($p < 0.05$) at 12 months. These effects remained when statistically controlling for baseline levels of stress, immunity and health as well as socio demographic, disease and cancer treatment variables. The impact of Event Scales (IES) quantified the frequency of intrusive thoughts and avoidant behaviours. Distress reduction ($z=2.11$, $p < 0.01$) is highlighted as an important mechanism by which health can be improved.

Alyson B.et.al (2007) conducted a study to examine the impact of yoga including physical poses, breathing, and meditation exercises on quality of life, fatigue, distress and spiritual well-being among a multi ethnic sample of breast cancer patients. 128 patients from an urban cancer center were randomly assigned to a 12 week yoga intervention. Regression analyses indicated that the control group had a greater decrease in social well being with the intervention group ($p < 0.001$). The mean number of classes attended by active participants was (7 ± 3.80). Secondary analyses indicated favourable outcomes for the intervention group compared with the control group in overall QOL

($P < 0.008$), emotional well-being ($P < 0.015$), social well-being ($P < 0.004$) spiritual well-being ($P < 0.009$), distress ($P < 0.031$).

Banerjee B., et.al., (2007) conducted a study to assess the effects of an integrated yoga programme in modulating perceived stress levels, anxiety, as well as depression levels and radiation induced DNA damage were studied in 68 breast cancer patients undergoing radiotherapy. Two questionnaires Hospital anxiety and depression scale (HADS) and Perceived Stress Scale and DNA damage assay were used in the study. There was a significant decrease in the yoga intervention group whereas the control group did not show any change. An integrated approach of yoga intervention modulates the stress and DNA damage levels in breast cancer patients during radiotherapy.

Puthusseril V., (2008) conducted a study to compare effects of rhythmic breathing relaxation and foot massage on depression, anxiety and quality of life. The design used was prospective quasi experimental design. 90 rural women with breast cancer receiving radiation therapy were selected. Subjects were randomly selected. Inferential and descriptive statistics were used to analyze the data and 0.05 level of significance was fixed. Baseline data revealed that the patients were mostly in the 40-69 year age group with a mean age of 47 years. 3 out of 4 women were house wives and 50% belonged to poor socio economic group coming from rural areas. The breathing exercise group showed greater reduction in anxiety and depression than the foot massage group.

Kanmani S., (2009) conducted a study to evaluate the effectiveness of progressive muscle relaxation technique in reducing anxiety among cancer patients. The sample size was 60 and they were selected by convenient sampling. Spielberg's anxiety inventory scale was used. Based on the objectives and hypothesis the data was analysed by using both descriptive and inferential statistics. Majority of them were females under 41-50 years. The obtained 't' value 10.6 was significant, $p < 0.05$. The results revealed that there was significant between anxiety with their sex, family history of cancer.

Suzanne.M.,(2009) stated that mind body therapies (MBT) like deep breathing exercises are used by 16.6% of adults in the united states. MBT included relaxation techniques (deep breathing exercises, progressive muscle relaxation), yoga, tai chi, and qigong. Among uses of MBT (n=5170), they assessed the medical conditions were most frequently treatment with MBT. Most of 50% of respondents used MBT in conjunction with conventional medical care 20% used MBT for conditions they thought conventional medicine would not help. There is a positive association between MBT use and several medical conditions including stress, depression. The results suggest that the use of relaxation techniques of 14.2% reduces stress.

Ulger O., (2010) in his study sought to assess the effects of yoga on the quality of life of patients with breast cancer. 20 patients between 30 and 50 years of age presently under the treatment of breast cancer were included in the study. 8 session of yoga programme including warming and breathing exercise, asanas, relaxation in supine position and meditation were applied to participants. The pre and post yoga quality of life assessment for patients were conducted using Nottingham Health Profile (NHP). Patients stress level were assessed using STAT-I and STAT-II anxiety inventory. Their satisfaction level of yoga programme was evaluated using Visual Analog scale. It was found that the patients quality of life scores after the yoga programme were better than the score obtained before the yoga programme ($p < 0.05$). After the session there was a statistically significant decrease in their STAT-I and STAT-II scores ($p < 0.05$). Thus the researcher concluded that the yoga therapy is valuable in helping to achieve relaxation and diminishing stress in cancer patients.

Karen Mustain., (2010) conducted a study to assess the effectiveness of yoga in reducing fatigue and improving sleep quality among cancer survivors. A 4 week yoga programme (75 minute yoga class twice a week for 4 weeks) was given as intervention. 410 survivors were accrued (96% female, mean age = 54, 75% breast cancer) and women are practising yoga more than men. ANCOVA's with baseline values as covariates revealed significant differences

(t value=17.3) in Sleep Quality (SQ), fatigue and Quality Of Life ($p<0.05$) between groups at post- intervention. The paired 't' value was 22.14. This study finding revealed that yoga participants demonstrated greater improvements in SQ, fatigue and QOL from pre- to post-intervention compared to control group. ANCOVA's also revealed the yoga group reduced sleep medication use.

SECTION F: STUDIES RELATED TO NURSES ROLE IN MULTICOMPONENT INTERVENTION

Judith., (2011) based on the health analysis survey data most common Complementary and Alternative Medicine therapy in the US cancer survivor population of 13.8 million, yoga is the third most common practice, followed by deep breathing exercises (14%) and meditation (9.7%). This trend of increasing CAM use is anticipated to continue, affecting the nature of healthcare for years to come. As a result, oncology nurses and other healthcare providers will continue to encounter an increasing number of CAM users in their patient population, many of whom will seek yoga as a way to address health concerns. So nurses play a vital role in providing holistic care to cancer patients.

CHAPTER – III

METHODOLOGY

This chapter includes research approach, research design, research setting, population, sample, criteria for sample selection, sample size and sampling procedure, instrument and scoring procedure, validity, reliability, pilot study, data collection procedure and plan for data analysis.

RESEARCH APPROACH

An Evaluative approach was used for this study

RESEARCH DESIGN

Quasi experimental non- equivalent pre test and post test control group design was adopted to assess the effectiveness of multicomponent intervention

SCHEMATIC REPRESENTATION

GROUP	PRE TEST	INTERVENTION	POST TEST
Experimental group	O ₁	X	O ₂
Control group	O ₁	-	O ₂

The symbols used :

- O₁ - Pre test to assess the level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group .
- X - Demonstrating and assisting to do yoga for 20 minutes, deep breathing exercises for 10 minutes and muscle relaxation exercises for 20 minutes to a group of patients with cancer who are undergoing radiation therapy for 50 minutes daily in the morning and evening for 20 days
- O₂ - Post test to assess the level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group .

RESEARCH SETTING

The study was conducted at Erode cancer center for experimental group and Health Care Globus (H.C.G) cancer center at Erode for control group . Erode cancer center is a 55 bedded cancer speciality hospital having 3 floors specialised in oncology, providing chemotherapy, radiation therapy and surgical treatment to the patients with cancer. It has an operation theatre and number of surgeries done is 8 per month. It has a chemotherapy ward with 20 beds and radiation therapy ward with 27 beds and 8 special rooms. Daily an average of 70 patients are receiving radiation therapy. The number of inpatients for radiation therapy is an average of 22-24per day, 45-48per month, 530 per year. The number of inpatients for chemotherapy is an average of 13-15 per day, 250 per month, 2900 per year. The number of inpatients for brachytherapy is an average of 1-2per month, 12-15 per year. The number of outpatients is 90-115 per day.

The H.C.G cancer center is situated within the Senthil Multi speciality hospital which is 150 bedded hospital specialised in medical, Surgical. Neurology, Nephrology, OBG, and Oncology care to the sick patients. It has an operation theatre and average number of surgeries done is 12 per month. It has a chemotherapy ward with 25 beds and radiation therapy ward with 25 beds and 12 special rooms. It has a separate unit for surgical oncology with 12 beds. Daily an average of 90 patients are receiving radiation therapy. There is a separate radiation therapy unit in the ground floor. The number of inpatients for radiation therapy is an average of 26-30 per day, 50-53 per month, 600 per year. The number of inpatients for chemotherapy is an average of 15-18 per day, 280 per month, 3500 per year. The number of outpatients is 100-120 per day.

POPULATION

Patients who are diagnosed with cancer in stomach, colon/rectum, oesophagus, lungs, breast, prostate, brain, larynx, oral, bladder, uterus, ovary, cervix, skin and lymphoma and undergoing radiation therapy .

SAMPLE

Patients with cancer who are undergoing radiation therapy and got admitted in Erode Cancer centre and H.C.G Cancer Centre at Erode.

CRITERIA FOR SAMPLE SELECTION

INCLUSION CRITERIA

- Patients with age group of 30 to 55 years.
- Both male and female patients.
- Patient who got newly admitted for first course of treatment with radiation therapy.
- Patient receiving a minimum of 21 fractions of radiation therapy for treatment.
- Patients got admitted in the In Patient Department for 20 days.
- Patients who are willing to participate in the study.

EXCLUSION CRITERIA

- Patients who are critically ill.
- Patients who are on chemotherapy and post surgical radiation therapy.

SAMPLE SIZE AND SAMPLING PROCEDURE

SAMPLE SIZE

The sample size for this study consists of 60. 30 were in experimental group and 30 were in control group.

SAMPLING TECHNIQUE

Non probability purposive sampling technique was used to select the samples for the study. For experimental group patients were selected from Erode cancer center, Erode and for control group patients were selected from H.C.G cancer center , Erode.

INSTRUMENT AND SCORING PROCEDURE

INSTRUMENT:

The tool consists of 3 parts.

PART – I

It consists of demographic variables such as age, sex, education, occupation, marital status, religion, family monthly income, type of family, area of residence, duration of illness, duration of treatment.

PART – II

Stress assessment rating scale was used to measure the level of stress among patient with cancer who are undergoing radiation therapy. The tool is adopted from Herschbach , Keller, Knight.et.al.,(2004). It contains 23 items. It is rated as almost never, sometimes, often, fairly often and very often. It is scored as 0, 1, 2, 3, 4, 5 respectively. The total score is 115.

PART- III

Sleep assessment rating scale was used to assess the quality of sleep among patient with cancer who are undergoing radiation therapy. This tool is adopted from Hays.R.D.,& Stewart.A.L.,(1992). This scale contains 12 questions. It has 9 negative items and 3 positive items. It is rated as all of the time, most of the time, a good bit of the time, some of the time, a little bit of the time and none of the time. The total score is 69.

SCORING PROCEDURE

PART II

Stress assessment rating scale was used to measure the level of stress
Stress scores are interpreted as follows.

Level of stress	Score	Percentage (%)
No stress	0-22	0-19
Mild stress	23-53	20-32
Moderate stress	54-84	33-64
Severe stress	85-115	65-100

PART III

Sleep assessment rating scale was used to assess the quality of sleep. It has 9 negative items and 3 positive items.

For the positive response, scores were measured as follows

All of the time	-	6
Most of the time	-	5
A good bit of the time	-	4
Some of the time	-	3
A little bit of the time	-	2
None of the time	-	1

For the negative response, scores were measured as follows

All of the time	-	1
Most of the time	-	2
A good bit of the time	-	3
Some of the time	-	4
A little bit of the time	-	5
None of the time	-	6

The total score is interpreted as

Quality of sleep	Score	Percentage (%)
Good sleep	51-69	68-100
Poor sleep	32-50	34- 67
Very Poor sleep	12-31	0-33

VALIDITY AND RELIABILITY OF THE TOOL

VALIDITY

The content validity of the tool was established in consultation with medical oncologists and four experts in the field of medical surgical nursing. It was modified according to the suggestion and recommendation of the experts.

RELIABILITY

The Reliability of the stress assessment rating scale was established by testing the equivalence using interrater method. Karl Pearson correlation formula was used and found to be reliable ($r= 0.95$). Reliability of the sleep assessment rating scale was established by testing the equivalence using interrater method. Karl Pearson correlation formula was used and found to be reliable ($r= 0.97$)

PILOT STUDY

The pilot study was conducted in H.C.G. Cancer Center, Erode . The researcher obtained written permission from the institution and oral permission from the participant prior to the study. The purpose of the study was explained to the subjects. Clients fulfilling the inclusion criteria were chosen by using purposive sampling technique. Sample size was 12, out of which 6 were in experimental group and 6 were in control group. Patients receiving first fraction of radiation therapy were selected as samples. On first day, data pertaining to the demographic variable was collected then pre test was conducted to the participants by using stress assessment rating scale and sleep assessment rating scale in both the group by structured interview schedule.

After pre test, Multi component intervention was demonstrated to the experimental group for 50 minutes in the morning and evening. Next day onwards the patients were assisted to do yoga for 20 minutes, deep breathing exercises for 10 minutes and muscle relaxation exercises for 20 minutes morning and evening for 10 days. On completion of 10 days of intervention in both groups post test was done by using the same scale.

Findings of the pilot study revealed that, for experimental group, the level of stress in pre test 84.6 (SD \pm 5.18) is higher than the post test level of stress 61.2 (SD \pm 6.46) and the pre test quality of sleep 29.6 (SD \pm 3.36) is lower than the post test the quality of sleep is 42.2 (SD \pm 6.26). The paired 't' value for experimental group was 27.36 (table value= 2.0452) at P<0.05 level of significance. Independent 't' value was 3.786 (table value= 2.306) at P< 0.05 level of significance shows that there is a significant improvement in the quality of sleep between experimental group and control group. The findings revealed a negative correlation between the level of stress and quality of sleep, $r = -0.9$. Result of the pilot study showed that it is feasible and practicable to conduct the main study.

DATA COLLECTION PROCEDURE

The main study was conducted in Erode cancer center and H.C.G cancer center at Erode. The data collection period was for 5 weeks. The investigator obtained written permission from the medical oncologists from both cancer centers and oral consent was obtained from the samples prior to the study. The purpose of the study was explained to the subjects. Patients fulfilling inclusion criteria were selected as samples by using purposive sampling technique. Every day 5 samples were selected for each group. On 1st day, in experimental group data pertaining to the demographic variables was collected by interview then pre test was conducted to the participants by using stress assessment rating scale and sleep assessment rating scale. Multi component intervention was demonstrated to the participants for 50 minutes in

the morning and evening. From next day onwards the participants were assisted to do yoga for 20 minutes, deep breathing exercises for 10 minutes and muscle relaxation exercises for 20 minutes by the samples both morning and evening for 20 days. Every day 5 patients were given the intervention in experimental group. For control group data pertaining to the demographic variables was collected by interview then pre test was conducted to the participants by using stress assessment rating scale and sleep assessment rating scale. In experimental group after completion of 20th day, post test was done by using the same scale and for control group also post test was done by using the same scale. Information booklet on multicomponent intervention was given after post test to make use of it at home setting to all the participants.

PLAN FOR DATA ANALYSIS

Data obtained was collected and analyzed by using descriptive statistics and inferential statistics and the effectiveness was evaluated.

SL. NO	DATA ANALYSIS	METHOD	PURPOSE
1	Descriptive statistics	Frequency percentage Mean, standard deviation	<p>To describe the demographic variables of patients with cancer undergoing radiation therapy.</p> <p>To assess the pre test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group and control group.</p> <p>To assess the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.</p>

PROTECTION OF HUMAN SUBJECTS:

The research proposal was approved by the dissertation committee. The consent was obtained from the Medical Director of both settings. Verbal consent was taken from the patients with cancer by explaining the purpose of the study before collecting the data.

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collection to evaluate the effectiveness of multicomponent intervention programme on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode.

ORGANIZATION OF DATA

The data has been tabulated and organized as follows

- SECTION A** : Distribution of demographic variables of patients with cancer undergoing radiation therapy in experimental and control group
- SECTION B** : Assess the pre test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group
- SECTION C** : Assess the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group
- SECTION D** : Comparison between the pre test and post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group
- SECTION E** : Comparison between the pre test and post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in control group
- SECTION F** : Comparison of the post test level of stress among patients with cancer who are undergoing radiation therapy between experimental and control group
- SECTION G** : Comparison of the post test quality of sleep among patients with cancer who are undergoing radiation therapy between experimental and control group

- SECTION H** : Correlation between the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group
- SECTION I** : Association between the mean post test level of stress among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.
- SECTION J** : Association between the mean post test quality of sleep among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

SECTION A: DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF PATIENTS WITH CANCER WHO ARE UNDERGOING RADIATION THERAPY

TABLE 1: Frequency and percentage distribution of demographic variables among patients with cancer who are undergoing radiation therapy in experimental group and control group

n1 = 30, n2= 30

S. NO	DEMOGRAPHIC VARIABLES	EXPERIMENTAL GROUP		CONTROL GROUP	
		Frequency	Percentage %	Frequency	Percentage %
1.	Age (in Years)				
1.1	30 –35 years	3	10	3	10
1.2	36 –40years	6	20	3	10
1.3	41– 45 years	5	17	4	13
1.4	46 – 50 years	10	33	8	27
1.5	51 - 55 years	6	20	12	40
2	Sex				
2.1	Male	10	33	11	36
2.2	Female	20	67	19	64
3	Educational Status				
3.1	No formal education	3	10	7	23
3.2	Primary education	15	50	13	44
3.3	High school education	5	17	2	7
3.4	Higher Secondary education	3	10	7	23
3.5	Graduate	4	13	1	3
4	Occupational Status				
4.1	Unemployed	5	17	9	30
4.2	Coolie	15	50	15	50
4.3	Government employee	3	10	2	7
4.4	Private sector worker	3	10	3	10
4.5	Self employment	4	13	1	3

5	Marital Status				
5.1	Single	1	3	1	3
5.2	Married	22	73	24	80
5.3	Widow	2	7	2	7
5.4	Divorced	2	7	1	3
5.5	Separate	3	10	2	7
6	Religion				
6.1	Hindu	18	60	14	47
6.2	Muslim	2	7	7	23
6.3	Christian	10	33	9	30
6.4	Others	-	-	-	-
7	Family Monthly Income				
7.1	Rs. 3000- Rs.8000	16	53	15	49
7.2	Rs. 8001- Rs.13000	11	37	11	37
7.3	Rs. 13001- Rs.18000	2	7	2	7
7.4	Rs.18001 and above	1	3	2	7
8	Type of family				
8.1	Nuclear Family	19	63	18	60
8.2	Joint Family	11	37	12	40
9	Area of residence				
9.1	Urban	10	33	5	17
9.2	Rural	20	67	25	83
10	Duration of illness				
10.1	< 1 year	7	23	12	40
10.2	1-3 years	19	64	11	36
10.3	4-5years	3	10	5	17
10.4	> 5 years	1	3	2	7

11	Duration of treatment				
11.1	< 1 year	8	27	12	40
11.2	1-3 years	18	60	11	37
11.3	4-5years	4	13	6	20
11.4	> 5 years	-	-	1	3

Table 1 shows the distribution of demographic variables among patients with cancer undergoing radiation therapy in both experimental group and control group

Regarding age in experimental group, majority 10(33%) belonged to the age group of 46-50 years, 6(20%) belonged to the age group of 36-40 years and 5(17%) belonged to the age group of 41-45 years 3(10%) belonged to the age group of 30-35 years. In control group majority of patients 12(40%) belonged to the age group of 51-55 years, 8(27%) belonged to the age group of 46-50 years, 4(13%) belonged to the age group of 41-45 years and 3(10%) belonged to the age group of 30-35 years, 3(10%) belonged to the age group of 36-40 years (fig 2).

With regard to sex, in experimental group, 20(67%) were females and 10(33%) were males. In control group, majority 19(64%) were females and 11(36%) was male (fig 3).

With regard to educational status in experimental group, majority of the patients 15(50%) had primary education, 5(17%) had high school education 4(13%) were graduates and 3(10%) had no formal education and had higher secondary education. In control group, 13(44%) had primary education, 7(23%) had higher secondary education and 7(23%) had no formal education, 2(7%) had high school education and 1(3%) was graduate (fig 4).

Regarding occupational status in experimental group, majority 15(50%) were coolie workers, 5(17%) were unemployed, 4(13%) were self employed, and 3(10%) were government employee and private sector worker . In control group majority 15(50%) were coolie workers, 9(30%) were unemployed, 3(10%) were private sector workers , 2(7%) were government employee and 1(3%)was self employed (fig 5).

Regarding marital status in experimental group, majority 22(73%) were married, 2(7%) were widow, 2(7%) were divorced, 3(10%) were separated and 1(3%) was single. In control group 24(80%) of the patients with cancer undergoing radiation therapy were married 2(7%) were separated ,2(7%) were widow and 1(3%) was single and 1(3%) was divorced (fig 6).

Regarding religion in experimental group, majority 18(60%) were Hindus 10(33%) were Christians and 2(7%) were Muslim. In control group, majority of the patients with cancer undergoing radiation therapy 14(47%) were Hindus 9(30%) were Christians and 7(23%) were Muslims (fig 7)

In regard to family monthly income, in experimental group majority 16(53%) were in between Rs 3000-Rs.8000, 11(37%) were in between Rs 8001-Rs.13000 , 2(7%) were in between Rs 13001-Rs.18000 and 1(3%) had an income above Rs. 18000. In control group majority 15(49%) were in Rs 3000-Rs.8000, and 11 (37%) was in between Rs.8001.- Rs. 13000, 2(7%) were in between Rs 13001-Rs.18000 and 2(7%) had an income above Rs. 18000 (fig 8).

Regarding type of family, in experimental group majority of the patients 19(63%) were in nuclear family and 11(37%) were in joint family. In control group majority 18(60%) were in nuclear family least 12(40%) were in joint family (fig 9).

With regard to area of residence in experimental group majority 20(67%) were in rural area and 10(33%) were in urban area. In control group majority of the patients 25(83%) were in rural area and 5(17%) were in urban area (fig 10).

In regard to duration of illness, in experimental group majority of the patients with cancer undergoing radiation therapy 19(64%) had duration of illness for 1-3 years, 7(23%) had duration of illness for less than 1 year , 3(10%) had duration of illness for 4-5 years and 1(3%) had the illness for more than 5 years. In control group majority 12(40%) had duration of illness for less than 1 year, 11(36%) had duration of illness for 1-3 years, 5(17%) had duration of illness for 4-5 years and 2(7%) had the illness for more than 5 years (fig 11).

In regard to duration of treatment, in experimental group 18(60%) had duration of treatment for 1-3 years, 8(27%) had duration of illness for 1-3 years and 4 (13%) had a duration of treatment for 4 -5 years. In control group majority 12(40%) had duration of treatment for less than 1 year, 11(37%) had duration of illness for 1-3 years, 6(20%) had duration of illness for 4-5 years and 1(3%) had the duration of treatment for more than 5 years (fig 12).

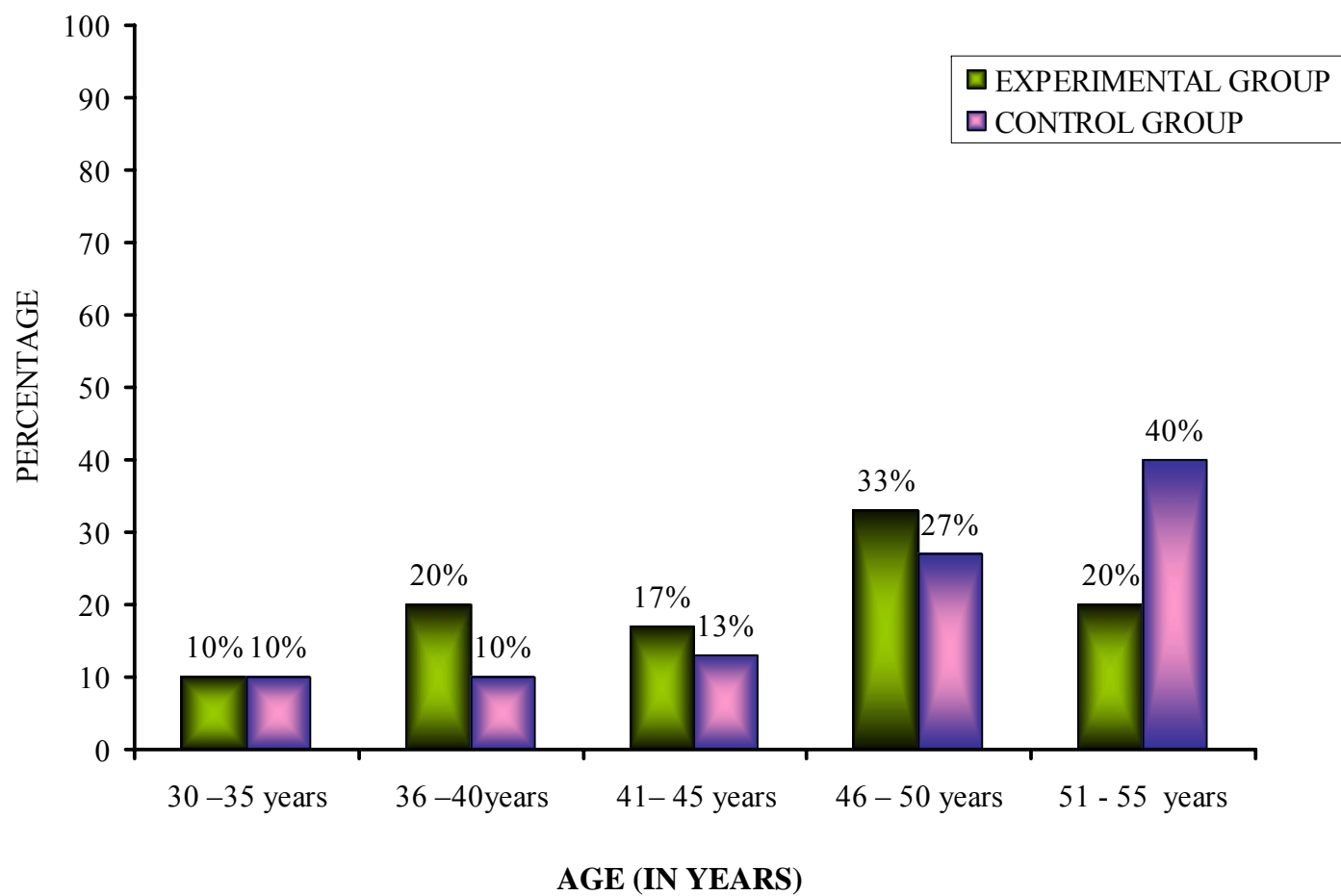


Fig 2 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Age in experimental group and control group

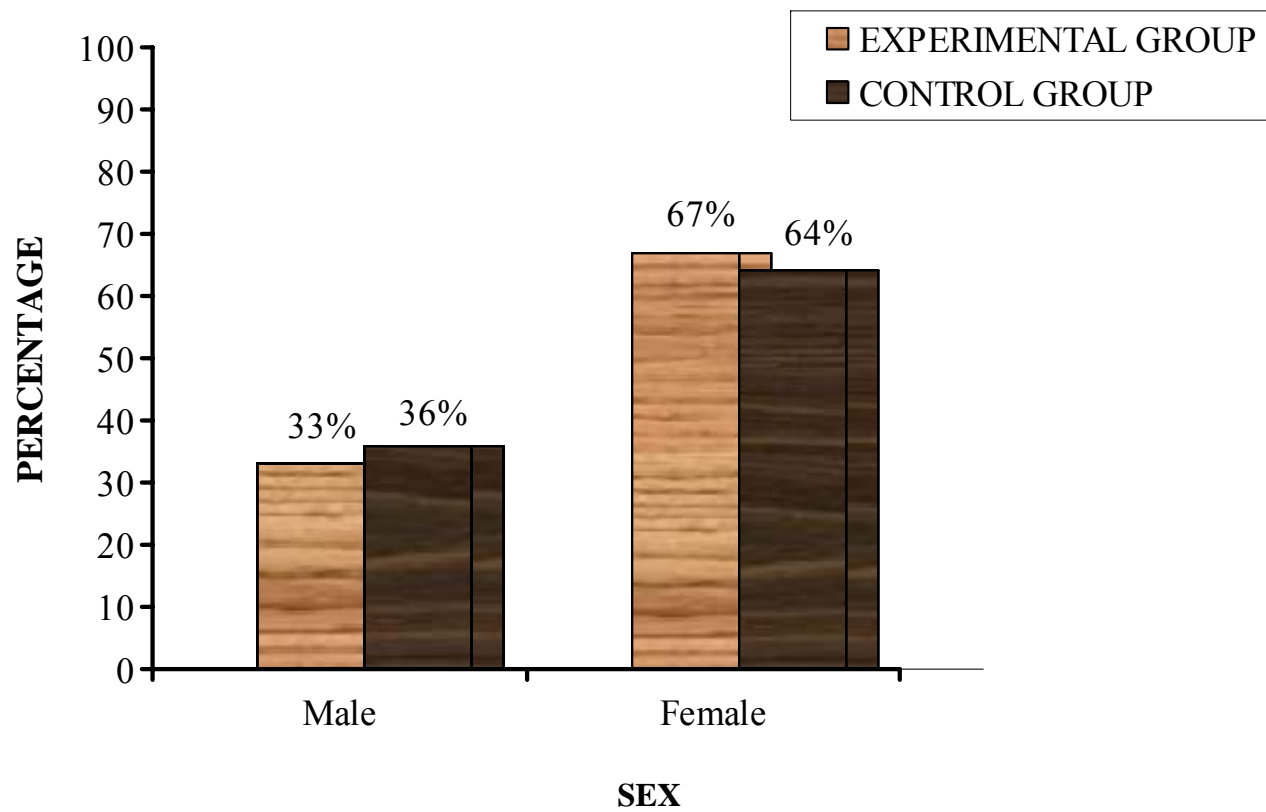
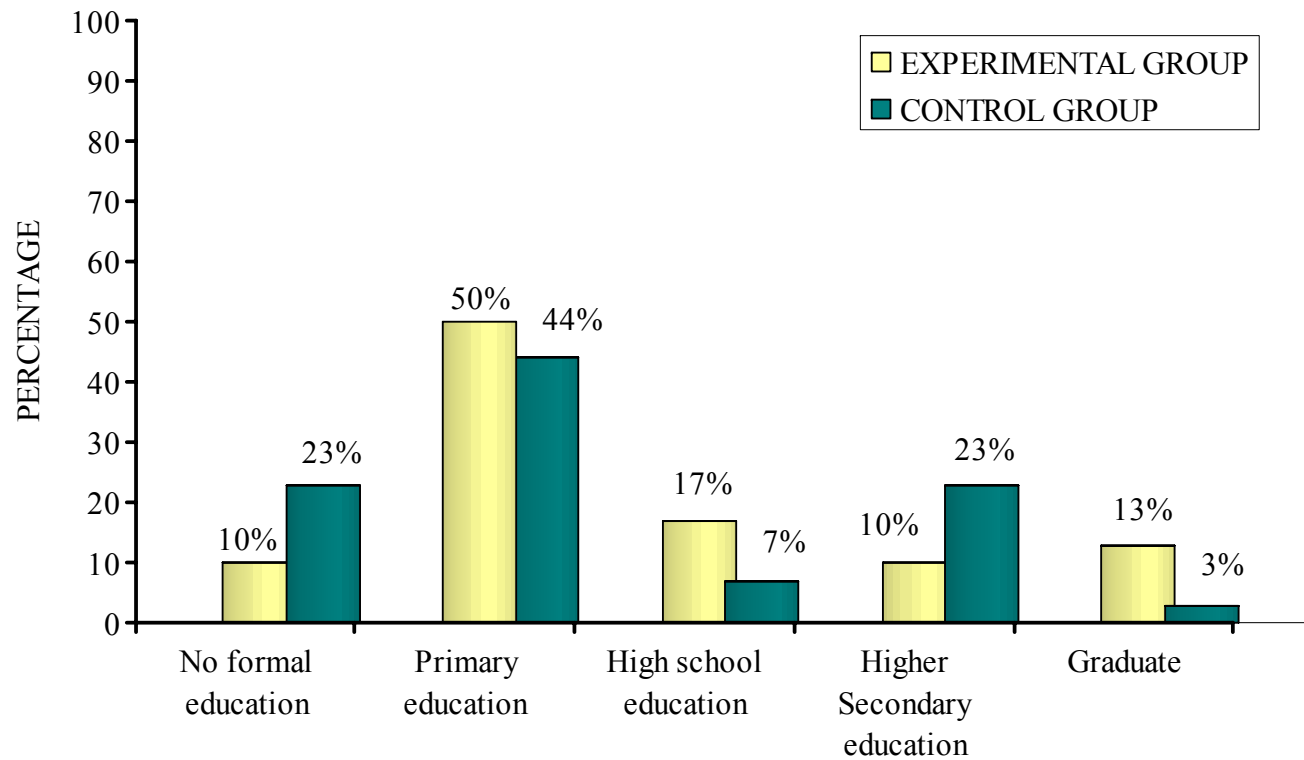


Fig 3 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Sex in experimental group and control group



EDUCATIONAL STATUS

Fig 4 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Educational status in experimental group and control group

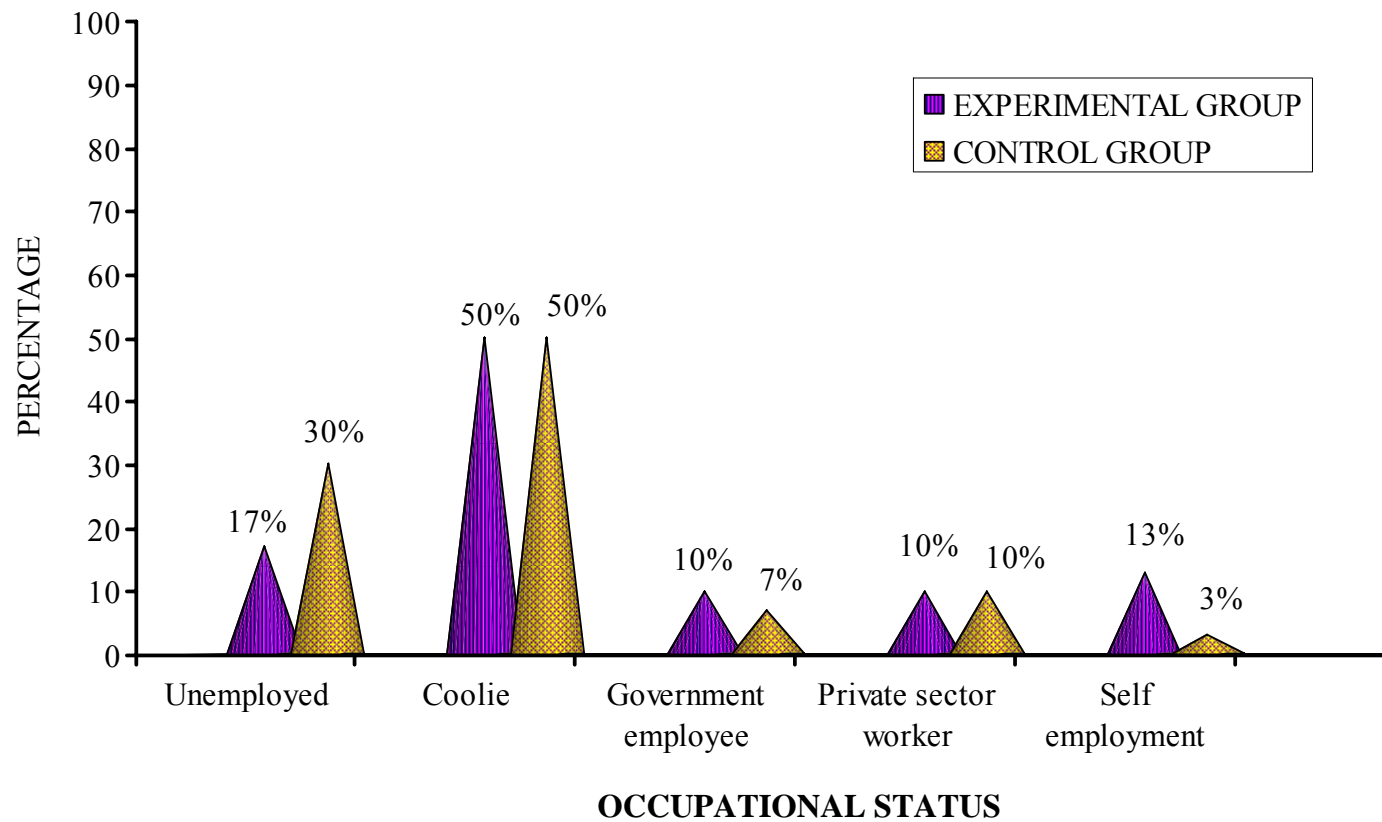


Fig 5 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Occupational status in experimental group and control group

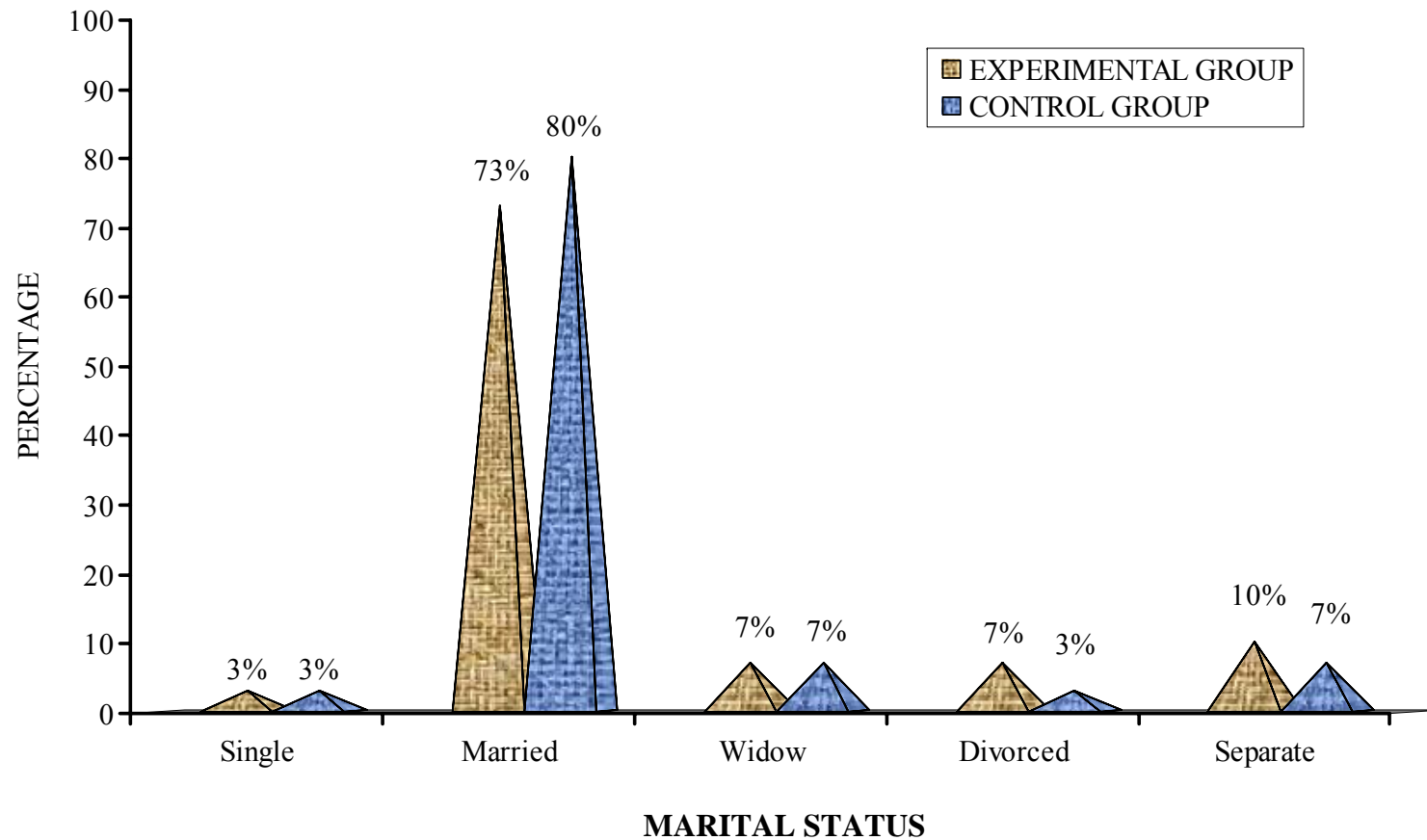


Fig 6 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Marital status in experimental group and control group

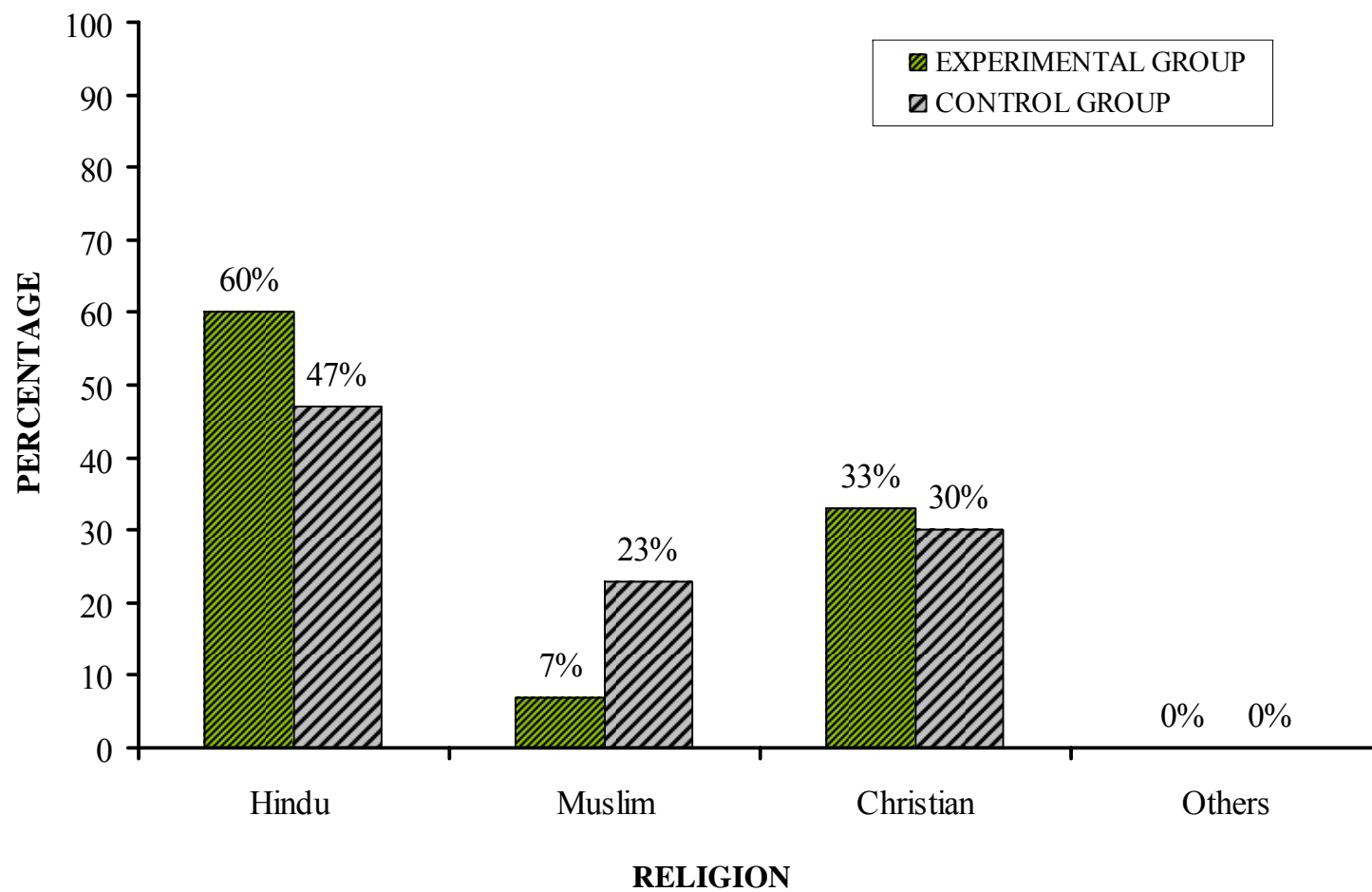


Fig 7 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Religion in experimental group and control group

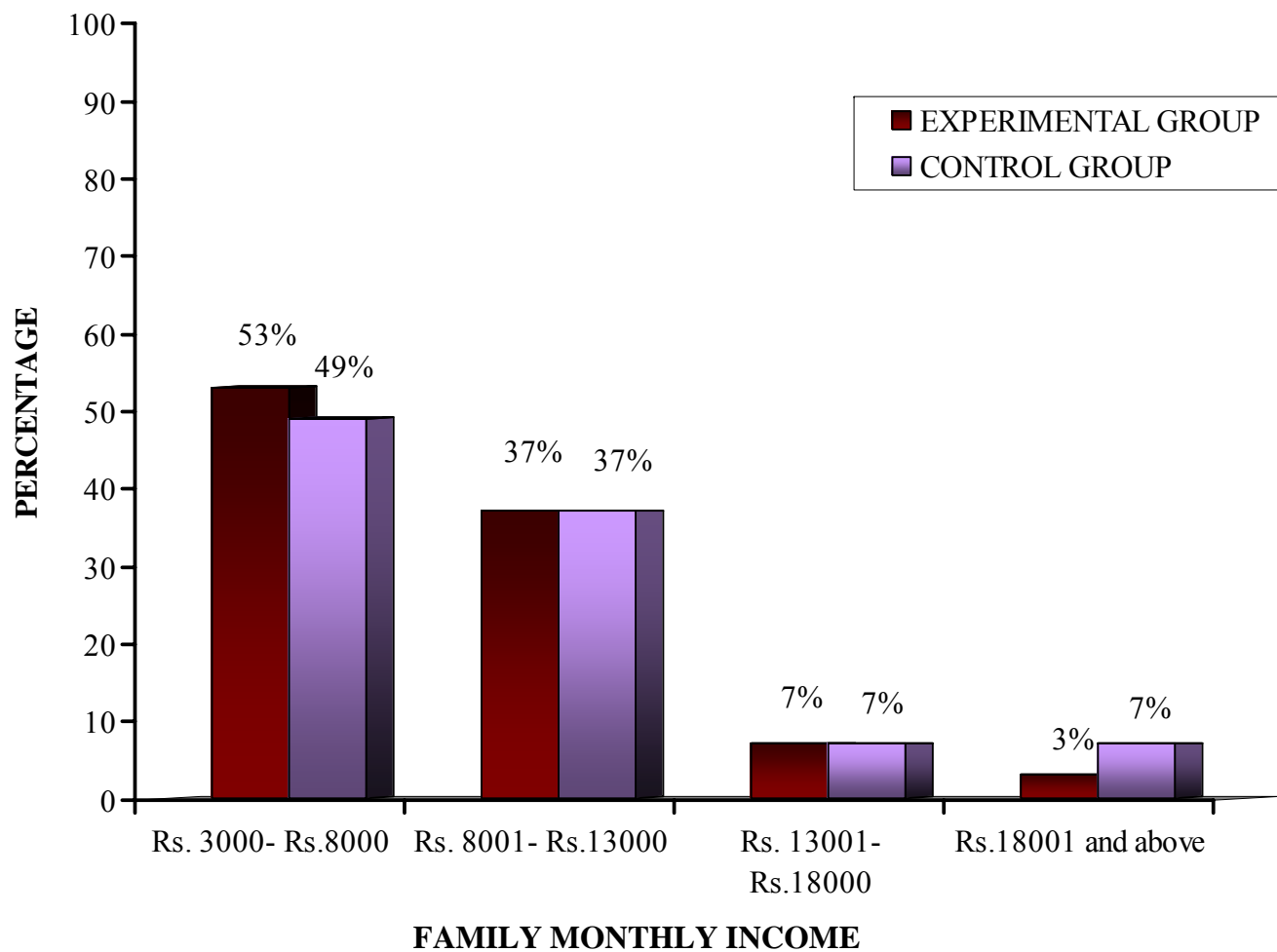


Fig 8 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Family monthly income in experimental group and control group

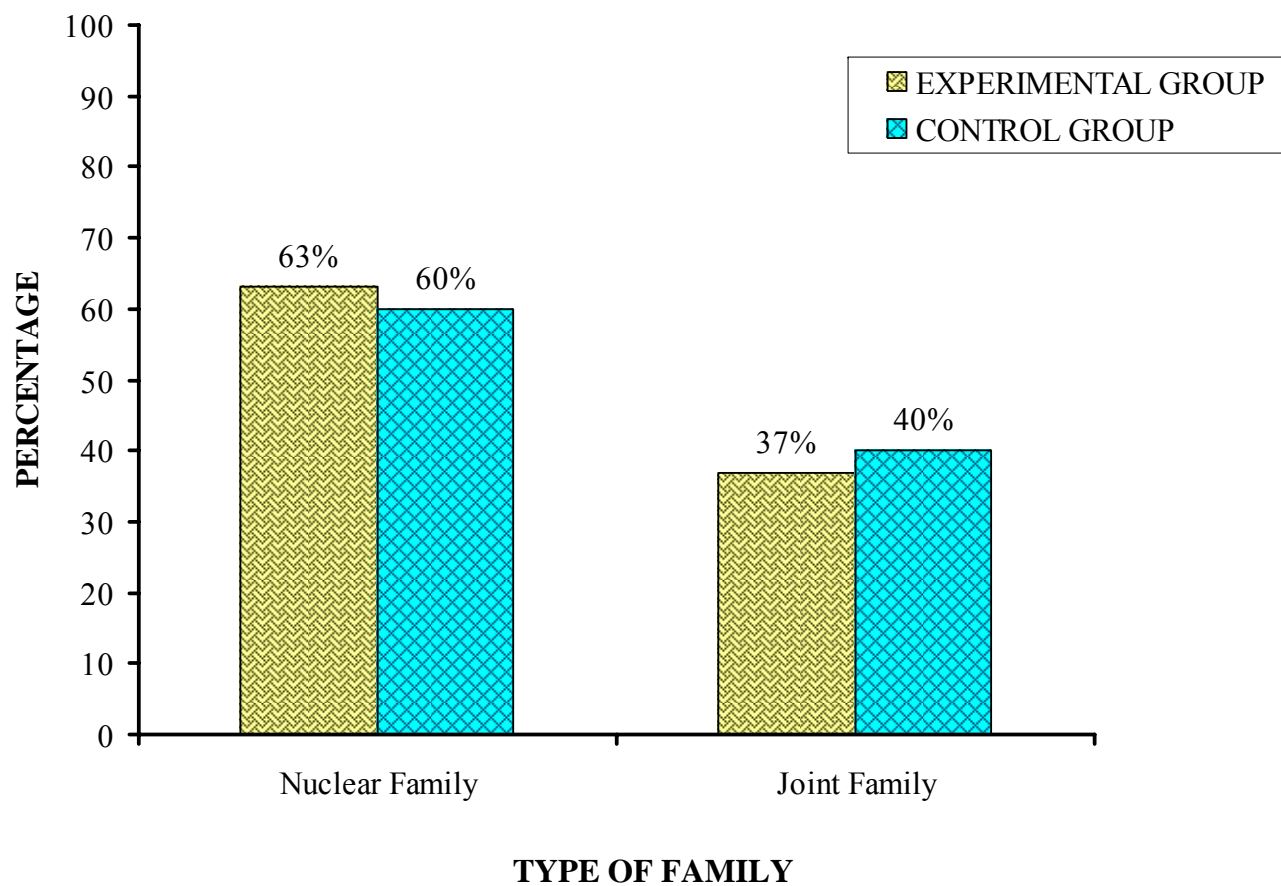


Fig 9 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Type of family in experimental group and control group

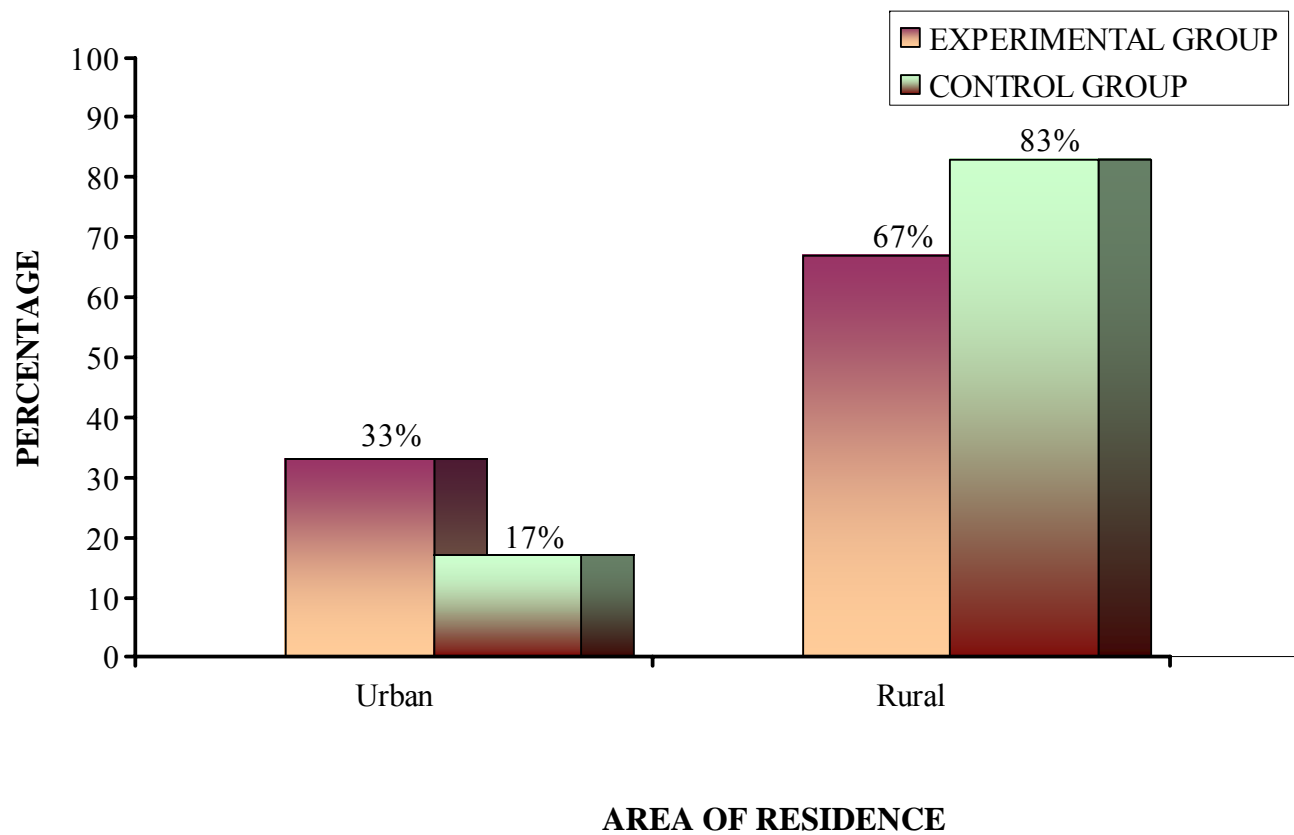


Fig 10: Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Area of residence in experimental group and control group

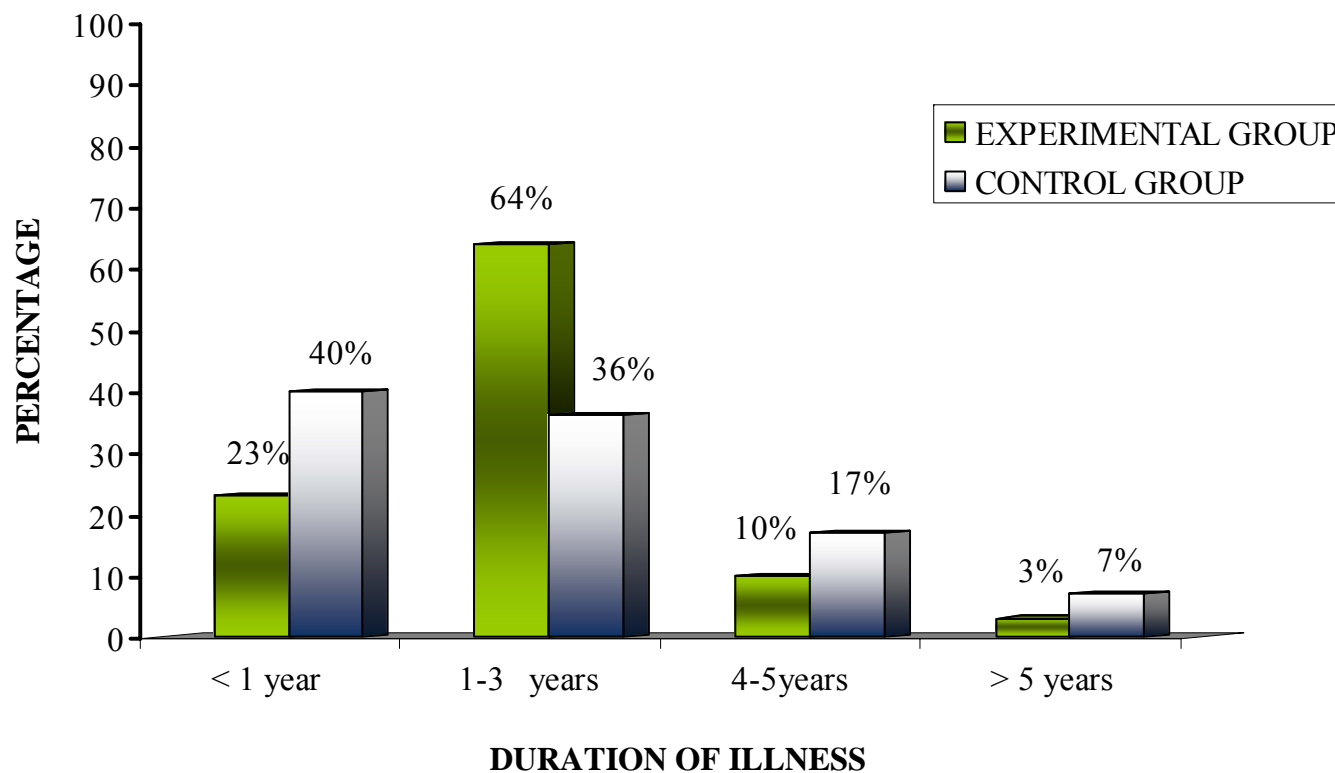


Fig 11 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Duration of illness in experimental group and control group

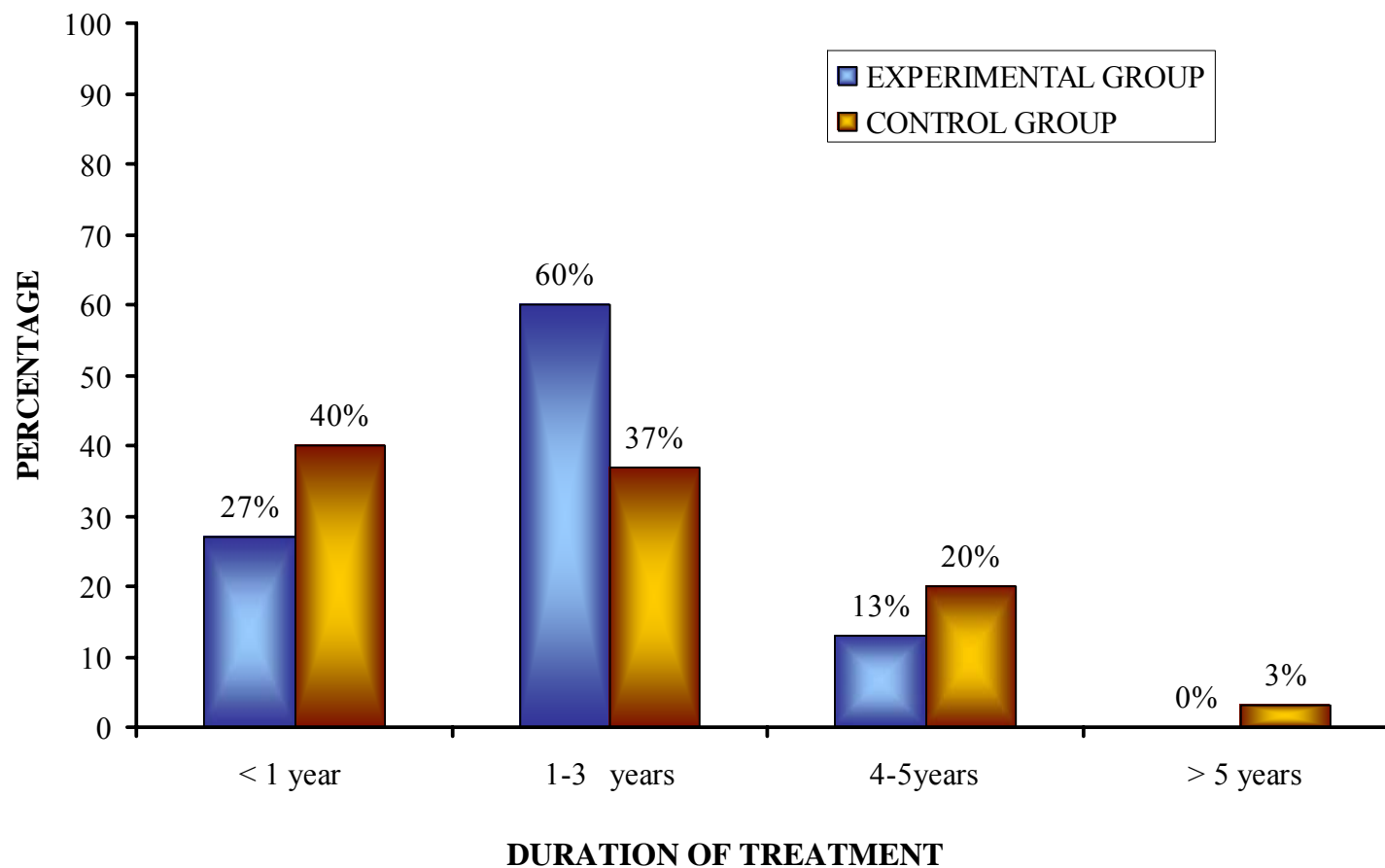


Fig 12 : Percentage distribution of patients with cancer who are undergoing radiation therapy according to their Duration of treatment in experimental group and control group

SECTION B: **Assess the pre test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group**

TABLE 2: Frequency and percentage distribution of pre test level of stress among patients with cancer who are undergoing radiation therapy in experimental and control group

n1=30, n2=30

S.NO	LEVEL OF STRESS	EXPERIMENTAL GROUP		CONTROL GROUP	
		F	%	F	%
1	No stress(0-23)	-	-	-	-
2	Mild Stress (23-53)	-	-	-	-
3	Moderate Stress (54-84)	13	43	14	47
4	Severe Stress (85-115)	17	57	16	53

Table 2 depicts that, in pre test majority 17(57%) had severe level of stress and 13(43%) had moderate level of stress where as in the control group 16(53%) of them had severe level of stress and 14(47%) had moderate level of stress (fig 13).

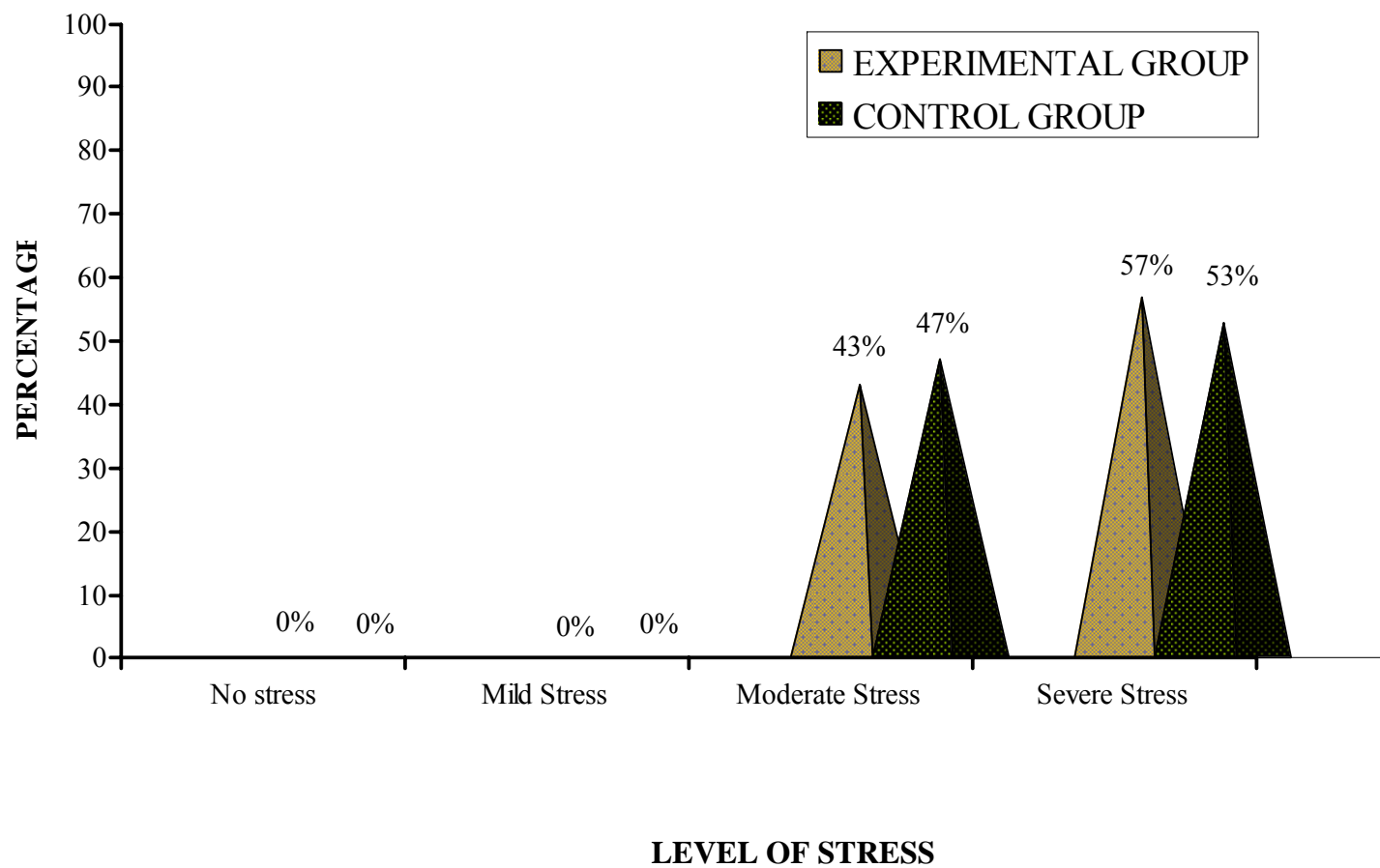


Fig 13 : Percentage distribution of level of stress among patients with cancer who are undergoing radiation therapy in experimental group and control group in pre test

TABLE 3: Frequency and percentage distribution of pre test quality of sleep scores among patients with cancer who are undergoing radiation therapy in experimental and control group.

n1=30; n2=30

S.NO	QUALITY OF SLEEP	EXPERIMENTAL GROUP		CONTROL GROUP	
		F	%	F	%
1	Good Sleep (51-69)	-	-	-	-
2	Poor Sleep (32-50)	10	33	13	43
3	Very Poor Sleep (12-31)	20	67	17	57

Table 3 depicts that, in the pre test 20(67%) had very poor quality of sleep and 10(33%) had poor quality of sleep. In the control group majority 17(57%) had very poor quality of sleep and the 13(43%) had poor quality of sleep (Fig 14).

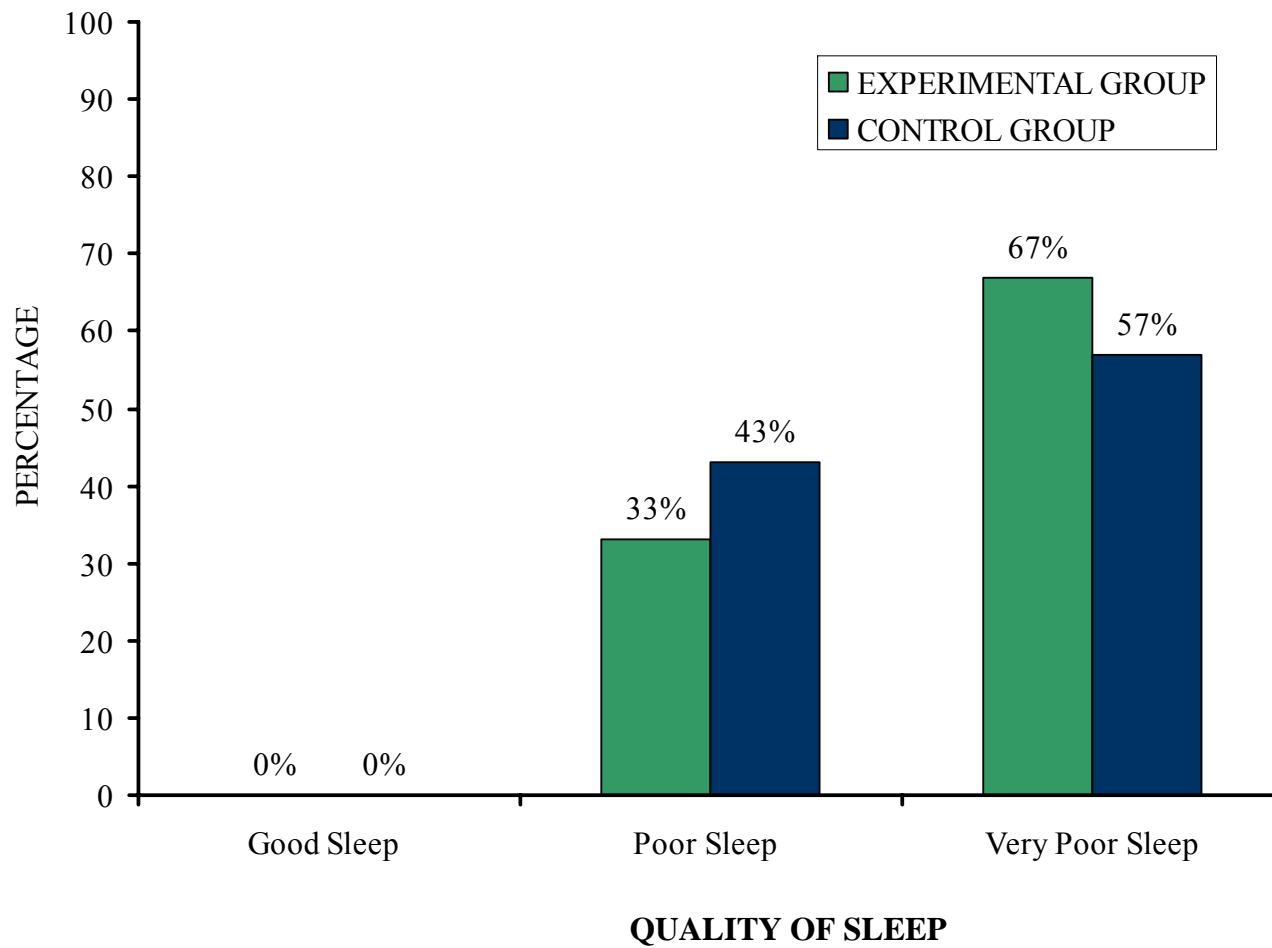


Fig 14 : Percentage distribution of quality of sleep scores among patients with cancer who are undergoing radiation therapy in experimental group and control group in pre test.

SECTION C: Assess the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group

TABLE 4: Frequency and percentage distribution of post test level of stress among patients with cancer who are undergoing radiation therapy in experimental and control group.

n1 =30; n2=30

S. NO	LEVEL OF STRESS	EXPERIMENTAL GROUP		CONTROL GROUP	
		F	%	F	%
1	No stress(0-22)	-	-	-	-
2	Mild Stress (23-53)	6	20	-	-
3	Moderate Stress (54-84)	24	80	15	50
4	Severe Stress (85-115)	-	-	15	50

Table 4 depicts that in the post test level of stress score 24(80%) of patients had moderate level of stress and 6(20%) of patients had mild level of stress where as in the control group 15(50%) of patients had severe level of stress and 15(50%) patients had moderate level of stress (Fig 15).

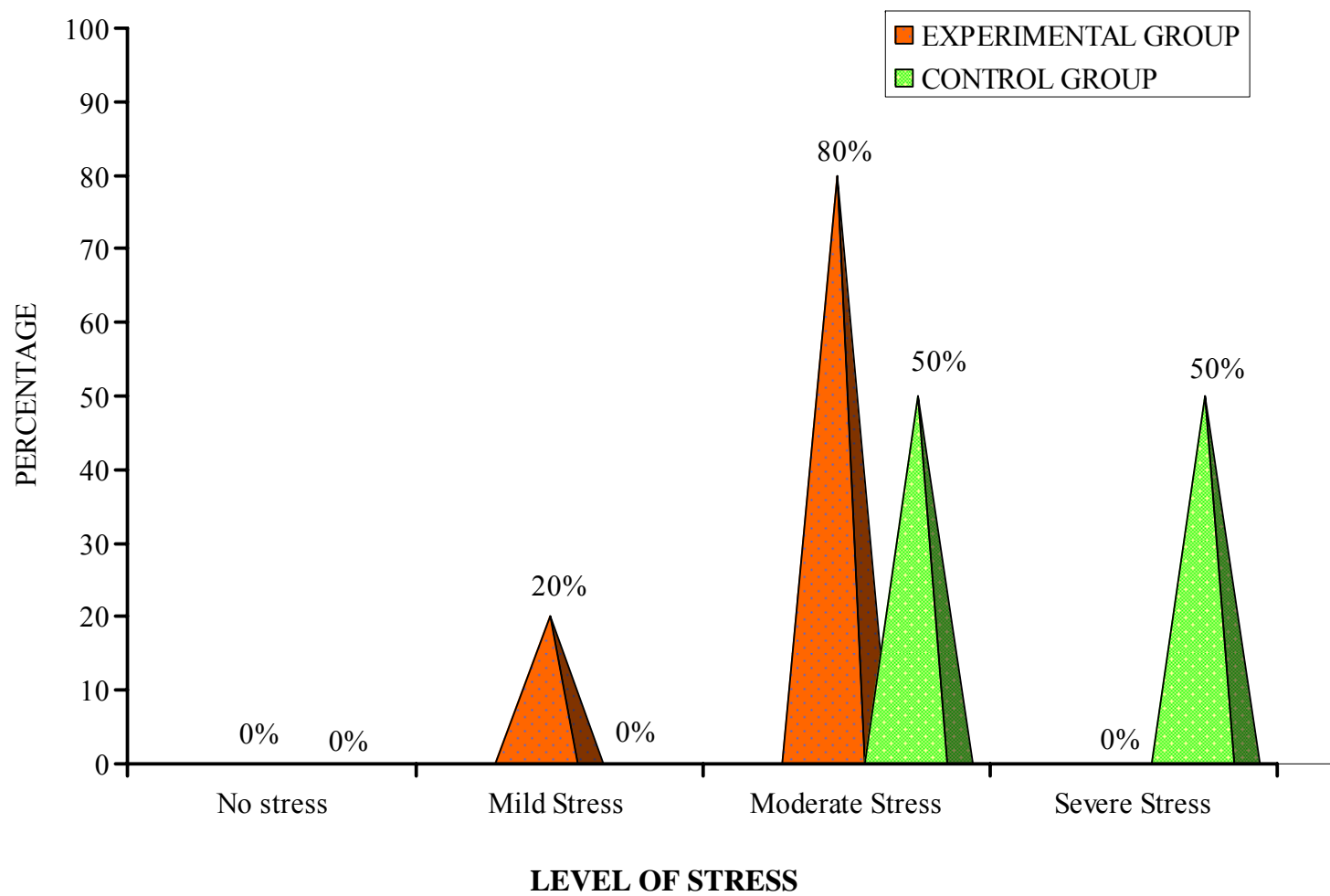


Fig 15 : Percentage distribution of level of stress among patients with cancer who are undergoing radiation therapy in experimental group and control group in post test.

TABLE 5: Frequency and percentage distribution of post test quality of sleep scores among patients with cancer who are undergoing radiation therapy in experimental and control group.

n1= 30; n2=30

S. NO	QUALITY OF SLEEP	EXPERIMENTAL GROUP		CONTROL GROUP	
		F	%	F	%
1	Good Sleep (51-69)	12	40	-	-
2	Poor Sleep (32-50)	18	60	14	47
3	Very Poor Sleep (12-31)	-	-	16	53

Table 5 depicts that, in the post test quality of sleep scores 18(60%) of patients had poor quality of sleep and 12(40%) of patients had good quality of sleep. In the control group majority 16(53%) of patients have very poor quality of sleep and the 14(47%) of patients have poor quality of sleep (Fig 16).

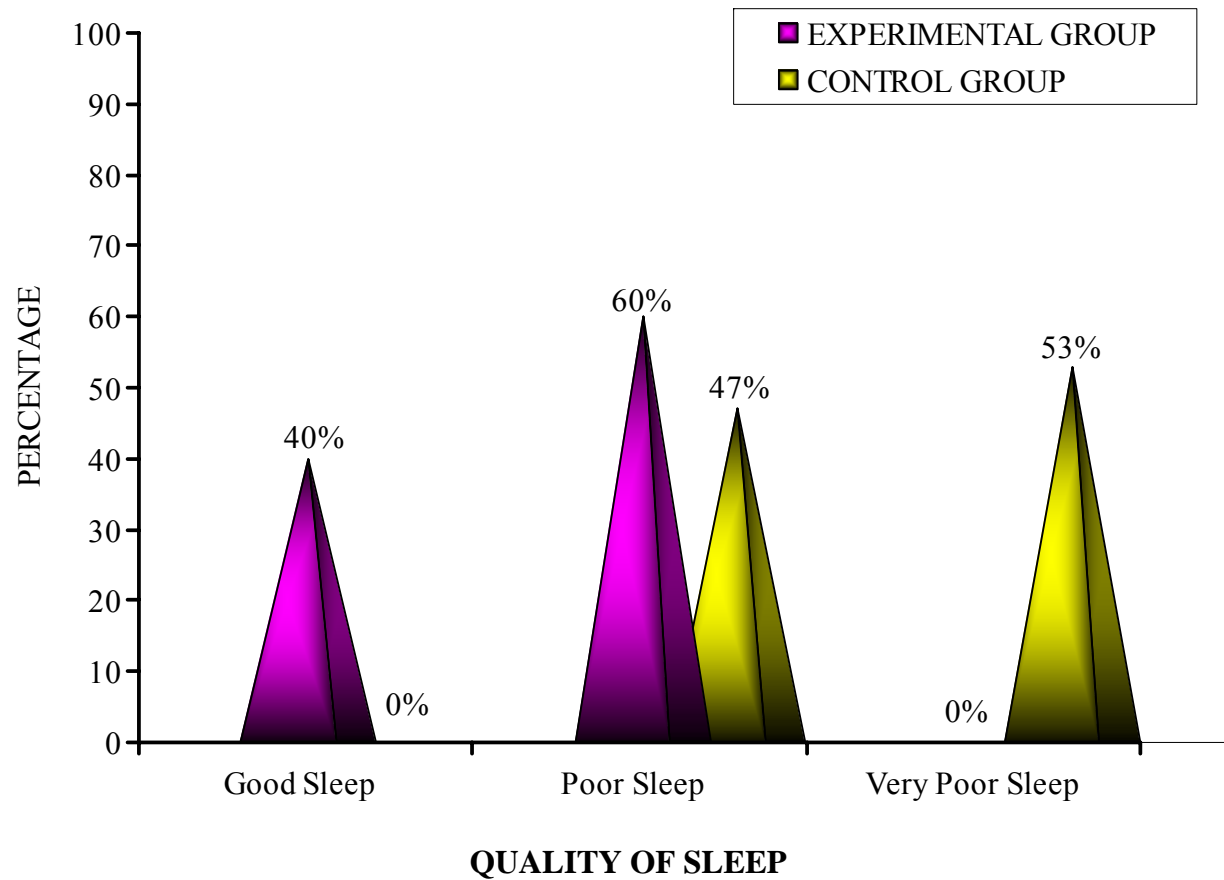


Fig 16 : Percentage distribution of quality of sleep scores among patients with cancer who are undergoing radiation therapy in experimental group and control group in post test.

SECTION D : **Comparison between the pre test and post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group.**

TABLE 6: Comparison of mean, standard deviation, mean difference and paired 't' value of pre test and post test level of stress among patients with cancer who are undergoing radiation therapy in experimental group.

n= 30

S No	VARIABLE	Mean	Standard Deviation	Mean Difference	Paired 't' value	Table value
1	Pre test	81.3	7.8	15.4	21.43	2.0452
2	Post test	65.9	9.06			

df= 29

p<0.05

Table 6 shows that the mean pre test scores of level of stress in experimental group is 81.3 (SD ± 7.8) and post test mean score is 65.9 (SD ± 9.06) and the mean difference is 15.4. The post test mean score (65.9) was lower than the pre test mean score is (81.3). The paired 't' value was 21.43 which was significant at $P < 0.05$ level, which showed that multicomponent intervention is effective in reducing stress.

TABLE 7: Comparison of mean , standard deviation, mean difference and paired ‘t’ value of pre test and post test quality of sleep scores among patients with cancer who are undergoing radiation therapy in experimental group.

n= 30

S No	VARIABLE	Mean	Standard Deviation	Mean Difference	Paired ‘t’ value	Table value
1	Pre test	29.96	3.63			
2	Post test	48.03	5.46	18.07	27.36	2.0452

df= 29

p<0.05

Table 7 shows that the mean pre test scores of quality of sleep scores in experimental group is 29.96 (SD \pm 3.63) and post test mean score is 48.03 (SD \pm 5.46) and the mean difference is 18.07. The post test mean score (48.03) was higher than the pre test mean score is (29.96) The paired ‘t’ value was 27.36 which was significant at P< 0.05 level, which showed that multicomponent intervention is effective in improving sleep.

SECTION E: Comparison between the pre test and post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in control group

TABLE 8: : Comparison of mean, standard deviation, mean difference and paired 't' value of pre test and post test level of stress among patients with cancer who are undergoing radiation therapy in control group.

n= 30

S No	VARIABLE	Mean	Standard Deviation	Mean difference	Paired 't' Value	Table value
1	Pre test	84.03	5.31	0.43	1.48	2.0452
2	Post test	84.46	5.17			

df= 29

p<0.05

Table 8 shows that the mean pre test scores of level of stress in control group is 84.03 (SD \pm 5.31) and post test mean score is 84.46 (SD \pm 5.17) and the mean difference is 0.43. The post test mean score (84.46) was higher than the pre test mean score is (84.03). The paired 't' value was 1.48 which was not significant at P< 0.05 level.

TABLE 9: Comparison of mean , standard deviation, mean difference and paired ‘t’ value of pre test and post test quality of sleep scores among patients with cancer who are undergoing radiation therapy in control group.

n= 30

S No	VARIABLE	Mean	Standard Deviation	Mean difference	Paired ‘t’ Value	Table value
1	Pre test	31.16	4.32	1.08	1.24	2.0452
2	Post test	30.08	4.31			

df= 29

p<0.05

Table 9 shows that the mean pre test scores of quality of sleep scores in control group is 31.16 (SD \pm 4.32) and post test mean score is 30.08 (SD \pm 4.31) and the mean difference is 1.08. The post test mean score (30.08) was lower than the pre test mean score (31.16) The paired ‘t’ value was 4.31 which was not significant at P< 0.05 level.

SECTION F: Comparison of the post test level of stress among patients with cancer who are undergoing radiation therapy between experimental and control group.

TABLE 10: Comparison of mean, standard deviation, mean difference and independent 't' value of post test level of stress among patients with cancer who are undergoing radiation therapy between experimental group and control group.

n1= 30; n2=30

S. No	GROUP	Mean	Standard Deviation	Mean Difference	Independent 't' value	Table value
1	Experimental Group	65.9	9.06	18.56	10.88	2.001
2	Control Group	84.46	5.17			

df= 58

(P <0.05)

Table 10 shows that the mean post test of level of stress scores in experimental group 65.9 (SD± 9.06) was significantly lower than the mean post test level of stress scores in control group 84.46 (SD± 5.17) and the mean difference is 18.56. The Independent 't' value was 10.88 which was significant at P < 0.05 level.

SECTION G: Comparison of the post test level of quality of sleep scores among patients with cancer who are undergoing radiation therapy between experimental and control group.

TABLE 11: Comparison of mean, standard deviation, mean difference and independent 't' value of post test quality of sleep among patients with cancer who are undergoing radiation therapy between experimental group and control group.

n1= 30; n2=30

S. No	GROUP	Mean	Standard Deviation	Mean Difference	Independent 't' value	Table value
1	Experimental Group	48.03	5.46	17.95	14.7	2.001
2	Control Group	30.08	4.3			

df= 58

(P <0.05)

Table 11 shows that the mean post test quality of sleep scores in experimental group 48.03 (SD \pm 5.46) was significantly higher than the mean post test quality of sleep scores in control group 30.08 (SD \pm 4.3) and the mean difference is 17.95. The Independent 't' value was 14.7 which was significant at P < 0.05 level.

SECTION : H : Correlation between the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group

TABLE 12: Correlation between the mean post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental group.

n= 30

S. No	VARIABLE	Mean	SD	Correlation coefficient	Table Value
1	Level of stress	65.9	9.06	-0.9	0.361
2	Quality of sleep	40.03	5.46		

df=28

p<0.05

Table 12 shows a negative correlation ($r = -0.9$ post test) between level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy which was significant at $p > 0.05$ level. Hence it indicates that as the level of stress increases, quality of sleep decreases.

SECTION I: Association between the post test level of stress among patient with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

TABLE 13: Association between the mean post test level of stress among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group

n=30

S. NO	DEMOGRAPHIC VARIABLE	LEVEL OF STRESS						χ^2	TABLE VALUE	INFERENCE
		MILD		MODERATE		SEVERE				
		F	%	F	%	F	%			
1.	Age (in years)									
1.1	30 – 35 years	-	-	3	10	-	-	1.448	15.51 df= 8	NS
1.2	36- 40 years	1	3	5	17	-	-			
1.3	41-45 years	1	3	4	13	-	-			
1.4	46-50 years	2	7	8	27	-	-			
1.5	51-55 years	2	7	4	13	-	-			
2	Sex									
2.1	Male	5	17	5	17	-	-	6.003	5.99 df= 2	S
2.2	Female	2	7	18	59	-	-			
3.	Educational status									
3.1	No formal education	-	-	3	10	-	-	8.745	15.51 df=8	NS
3.2	Primary education	2	7	13	42	-	-			
3.3	High school education	-	-	5	17	-	-			
3.4	Higher secondary education	2	7	1	3	-	-			
3.5	Graduate	2	7	2	7	-	-			

4.	Occupational status									
4.1	Unemployed	2	7	3	10	-	-			
4.2	Coolie	1	3	14	47	-	-		15.51	
4.3	Government employee	2	7	1	3	-	-	8.297	df=8	NS
4.4	Private sector worker	1	3	2	7	-	-			
4.5	Self employment	-	-	4	13	-	-			
5	Marital status									
5.1	Single	-	-	1	3	-	-			
5.2	Married	5	17	17	56	-	-	2.242	15.51	NS
5.3	Widow	-	-	2	7	-	-		df= 8	
5.4	Divorced	-	-	2	7	-	-			
5.5	Separate	-	-	3	10	-	-			
6.	Religion									
6.1	Hindu	2	7	16	54	-	-			
6.2	Muslim	1	3	1	3	-	-		12.59	NS
6.3	Christian	3	10	7	23	-	-	3.638	df= 6	
6.4	Others	-	-	-	-	-	-			
7.	Family monthly income									
7.1	Rs 3000-Rs 8000	-	-	16	53	-	-			
7.2	Rs 8001- Rs 13000	3	10	8	27	-	-		12.59	
7.3	Rs 13001- Rs 18000	2	7	-	-	-	-	16.362	df= 6	S
7.4	Rs 18001 and above	1	3	-	-	-	-			
8.	Type of Family									
8.1	Nuclear family	4	13	15	50	-	-	0.034	5.99	NS
8.2	Joint family	2	7	9	30	-	-		df=2	

9.	Area of residence									
9.1	Urban	2	7	8	27	-	-		5.99	
9.2	Rural	4	13	16	53	-	-	0	df=2	NS
10	Duration of Illness									
10.1	<1 year	-	-	7	23	-	-			
10.2	1-3 years	4	14	15	50	-	-	2.538	12.59	NS
10.3	4-5 years	1	3	2	7	-	-		df=6	
10.4	>5 years	-	-	1	3	-	-			
11.	Duration of treatment									
11.1	<1 year	1	3	7	23	-	-			
11.2	1-3 years	4	14	14	47	-	-	0.506	12.59	
11.3	4-5 years	1	3	3	10	-	-		df= 6	NS
11.4	>5 years	-	-	-	-	-	-			
S- Significant					NS- Non significant					

Table 13 Chi Square value were calculated to find the association between the post test level of stress scores among patients with cancer who are undergoing radiation therapy. The findings revealed that there was no significant association with demographic variables except for sex ($\chi^2 = 6.003$) and family monthly income ($\chi^2 = 16.362$) in experimental group.

SECTION J: To find the association between the post test quality of sleep among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

TABLE 14 : Association between the mean post test quality of sleep among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

n =30

S. NO	DEMOGRAPHIC VARIABLE	QUALITY OF SLEEP						χ^2	TABLE VALUE	INFERENCE
		GOOD		POOR		VERY POOR				
		F	%	F	%	F	%			
1.	Age (in years)									
1.1	30 – 35 years	-	-	3	10	-	-	5.856	15.51 df= 8	NS
1.2	36- 40 years	2	7	4	13	-	-			
1.3	41-45 years	1	3	4	13	-	-			
1.4	46-50 years	6	21	4	13	-	-			
1.5	51-55 years	1	3	5	17	-	-			
2	Sex									
2.1	Male	8	27	2	7	-	-	9.999	5.99 df= 2	S
2.2	Female	4	13	16	53	-	-			
3.	Educational status									
3.1	No formal education	1	3	2	7	-	-	1.383	15.51 df=8	NS
3.2	Primary education	5	16	10	33	-	-			
3.3	High school education	2	7	3	10	-	-			
3.4	Higher secondary education	2	7	1	3	-	-			
3.5	Graduate	2	7	2	7	-	-			

4.	Occupational status									
4.1	Unemployed	2	7	3	10	-	-			
4.2	Coolie	6	20	9	30	-	-			
4.3	Government employee	2	7	1	3	-	-	1.318	15.51	NS
4.4	Private sector worker	1	3	2	7	-	-		df=8	
4.5	Self employment	1	3	3	10	-	-			
5	Marital status									
5.1	Single	-	-	1	3	-	-			
5.2	Married	9	30	13	44	-	-			
5.3	Widow	1	3	1	3	-	-	2.977	15.51	NS
5.4	Divorced	-	-	2	7	-	-		df= 8	
5.5	Separate	2	7	1	3	-	-			
6.	Religion									
6.1	Hindu	5	17	13	44	-	-			
6.2	Muslim	1	3	1	3	-	-	2.869	12.59	NS
6.3	Christian	6	20	4	13	-	-		df= 6	
6.4	Others	-	-	-	-	-	-			
7.	Family monthly income									
7.1	Rs 3000-Rs 8000	4	13	12	40	-	-			
7.2	Rs 8001- Rs 13000	5	17	6	20	-	-	5.985	12.59	
7.3	Rs 13001- Rs 18000	2	7	-	-	-	-		df= 6	NS
7.4	Rs 18001 and above	1	3	-	-	-	-			
8.	Type of Family									
8.1	Nuclear family	8	27	11	37	-	-	0.095	5.99	NS
8.2	Joint family	4	13	7	23	-	-		df=2	
9.	Area of residence									
9.1	Urban	4	13	6	20	-	-		5.99	
9.2	Rural	8	27	12	40	-	-	0	df=2	NS

10	Duration of Illness									
10.1	<1 year	3	10	4	13	-	-			
10.2	1-3 years	8	27	11	37	-	-		12.59	NS
10.3	4-5 years	1	3	2	7	-	-	0.779	df=6	
10.4	>5 years		-	1	3	-	-			
11.	Duration of treatment									
11.1	<1 year	3	10	5	17	-	-			
11.2	1-3 years	8	27	10	33	-	-	0.542	12.59	
11.3	4-5 years	1	3	3	10	-	-		df= 6	NS
11.4	>5 years	-	-	-	-	-	-			

S – Significant

NS- Non significant

Table 14 Chi Square value were calculated to find the association between the post test quality of sleep scores among patients with cancer who are undergoing radiation therapy. The findings revealed that there was no significant association with demographic variables except for sex ($\chi^2 = 9.999$) in experimental group.

CHAPTER - V

DISCUSSION

The discussion chapter deals with sample characteristics and objectives of the study. The aim of this present study was to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode.

Distribution of Sample Characteristics

- Regarding age in experimental group, among the patients with cancer 10(33%) belonged to the age group of 46-50 years and least 3(10%) belonged to the age group of 30-35 years. In control group majority of patients 12(40%) belonged to the age group of 51-55 years and least 3(10%) belonged to the age group of 30-35 years and least 3(10%) belonged to the age group of 36-40 years. These findings are consistent with the findings Of **Puthusseril V.,(2008)** who reported that the patients with cancer were mostly in the 40-69 year age group with a mean age of 47 years.
- With regard to sex, in experimental group, 20(67%) were females and 10(33%)were males. In control group, majority 19(64%) were females and 11(36%) was male. These findings are consistent with the findings of **Sehlen.et.al, (2003)**, who reported that women showed significantly higher stress.
- Regarding educational status, in experimental group, majority, 15(50%) had primary education, least 3(10%) had higher secondary education and 3(10%) had no formal education. In control group, 13(44%) had primary education and 1(3%) was graduate.
- Regarding occupational status, in experimental group , majority 15(50%) were coolie workers and 3(10%) were government employee and 3(10%) were private sector workers. In control group majority 15(50%) were coolie workers and 1(3%)was self employed.

- With regard to marital status, in experimental group , majority 22(73%) were married and 1(3%) was single. In control group 24(80%) were married and 1(3%) was single and 1(3%) was divorced.
- In regard to religion in experimental group, majority 18(60%) were Hindus and 2(7%) were Muslim. In control group, majority of the patients 14(47%) were Hindus and 7(23%) were Muslims.
- Regarding family monthly income, in experimental group majority 16(53%) were in between Rs 3000-Rs.8000 and least 1(3%) had an income above Rs. 18000. In control group 15(49%) were in Rs 3000-Rs.8000, and 2 (7%) was in between Rs.13001.- Rs. 18000 and 2(7%) had an income above Rs. 18000. These findings are consistent with the findings of **Puthusseril V. ,(2008)**, who reported that the patients with cancer 50% belonged to poor socio economic group.
- With regard to type of family, in experimental group , 19(63%) were in nuclear family and least 11(37%) were in joint family. In control group majority 18(60%) were in nuclear family and least 12(40%) were in joint family.
- Regarding the area of residence, in experimental group majority of the patients 20(67%) were in rural area and 10(33%) were in urban area. In control group majority of the patients 25(83%) were in rural area and 5(17%) were in urban area These findings are consistent with the findings of **Puthusseril V. ,(2008)**, who reported that the patients with cancer 50% belonged to rural areas.
- Regarding duration of illness, in experimental group majority 19(64%) had duration of illness for 1-3 years and 1(3%) had the illness for more than 5 years. In control group majority 12(40%) had duration of illness for less than 1 year and 2(7%) had the illness for more than 5 years.

- Regarding duration of treatment, in experimental group majority of the patients 18(60%) had duration of treatment for 1-3 years and 4 (13%) had a duration of treatment for 4 -5 years. In control group majority 12(40%) had duration of treatment for less than 1 year and 1(3%) had the duration of treatment for more than 5 years.

THE FINDINGS OF THE STUDY ARE DISCUSSED ACCORDING TO THE OBJECTIVES FOLLOWS

1. To assess the pre test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.
2. To assess the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.
3. To compare the pre test and post test level of stress among patients with cancer who are undergoing radiation therapy in experimental and control group.
4. To compare the pre test and post test quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.
5. To compare the post test level of stress among patients with cancer who are undergoing radiation therapy between experimental and control group.
6. To compare the post test quality of sleep among patients with cancer who are undergoing radiation therapy between experimental and control group.
7. To find out the relationship between the post test level of stress and quality of sleep in experimental group.
8. To find the association between the post test level of stress among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

9. To find the association between the post test quality of sleep among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

OBJECTIVE 1

To assess the pre test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.

Among cancer patients in experimental group majority 17(57%) had severe level of stress and 13(43%) had moderate level of stress and 20(67%) had very poor quality of sleep and 10(33%) had poor quality of sleep where as in the control group 16(53%) of them had severe level of stress and 14(47%) had moderate level of stress and in the control group majority 17(57%) had very poor quality of sleep and the 13(43%) had poor quality of sleep.

OBJECTIVE 2

To assess the post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.

Among cancer patients in experimental group , 24(80%) of patients had moderate level of stress and 6(20%) of patients had mild level of stress quality of sleep scores, 18(60%) of patients had poor quality of sleep and 12(40%) of patients had good quality of sleep where as in the control group 15(50%) of patients had severe level of stress and 15(50%) patients had moderate level of stress 16(53%) of patients have very poor quality of sleep and the 14(47%) of patients have poor quality of sleep.

OBJECTIVE 3

To compare the pre test and post test level of stress among patients with cancer who are undergoing radiation therapy in experimental and control group.

The data analysis showed that the mean pre test scores of level of stress in experimental group is 81.3 (SD ± 7.8) and post test mean score is 65.9 (SD ± 9.06) respectively. The post test mean score was lower than the pre test mean score. The paired 't' value was 21.43 which was significant at $P < 0.05$ level.

The study findings showed that the mean pre test scores of level of stress in control group is 84.03 (SD ± 5.31) and post test mean score is 84.46 (SD ± 5.17) respectively. The post test mean score was higher than the pre test mean score.

This study was consistent with the study finding of **Khurshid S .J., (2003)** who reported that muscle relaxation therapy showed significant decrease in stress level of cancer patient in experimental group. Analysis of data for 't' value at $p < 0.05$ level of significance revealed that the calculated value (2.09) are more than table value.

Therefore, the research hypothesis **H₁** that is the mean post test level of stress scores is significantly lower than the mean pre test level of stress scores in experimental group was accepted.

OBJECTIVE 4

To compare the pre test and post test quality of sleep among patients with cancer who are undergoing radiation therapy in experimental and control group.

The data analysis showed that the mean pre test scores of quality of sleep scores in experimental group is 29.96 (SD ± 3.63) and post test mean

score is 48.03 (SD \pm 5.46) respectively. The post test mean score was higher than the pre test mean score. The 't' value was 27.36 which was significant at $P < 0.05$ level.

The study findings showed that the mean pre test scores of quality of sleep scores in control group is 31.16 (SD \pm 4.32) and post test mean score is 30.08 (SD \pm 4.31) respectively. The post test mean score was lower than the pre test mean score. This study was consistent with the study finding of **Karen Mustain., (2010)** who reported that ANCOVA's with baseline values revealed significant differences in Sleep Quality ($p < 0.05$) at post- intervention. The paired 't' value was 22.14. This study findings revealed that yoga participants demonstrated greater improvements in sleep quality from pre- to post-intervention. ANCOVA's also revealed that the yoga group has reduced sleep medication use.

Therefore the research hypothesis **H₂** that is the mean post test quality of sleep scores is significantly higher than the mean pre test quality of sleep scores in experimental group was accepted.

OBJECTIVE 5

To compare the post test level of stress among patients with cancer who are undergoing radiation therapy between experimental and control group.

The data analysis showed that the mean post test of level of stress scores in experimental group 65.9 (SD \pm 9.06) was significantly lower than the mean post test level of stress scores in control group 84.46 (SD \pm 5.17). The Independent 't' value was 10.88 which was significant at $P < 0.05$ level.

This study was consistent with the study finding of **Khurshid S.J., (2003)** who reported that muscle relaxation therapy showed significant decrease in stress level of cancer patient in experimental group. The Independent 't' value was 9.2 which was significant at $p < 0.05$ level.

Analysis of data for t value at $p < 0.05$ level of significance revealed that the calculated value are more than table value.

Therefore the research hypothesis **H₃** that is the mean post test level of stress scores in the experimental group is significantly lower than the mean post test level of stress scores in control group was accepted.

OBJECTIVE 6

To compare the post test quality of sleep among patients with cancer who are undergoing radiation therapy between experimental and control group

It was found that the mean post test quality of sleep scores in experimental group 48.03 (SD \pm 5.46) was significantly higher than the mean post test quality of sleep scores in control group 30.08 (SD \pm 4.3). The Independent 't' value was 14.7 which was significant at $P < 0.05$ level.

This study was consistent with the study finding of **Karen Mustain., (2010)** who reported that ANCOVAs with baseline values revealed significant differences(t value=17.3) in Sleep Quality ($p < 0.05$) between groups at post- intervention. This study findings revealed that yoga participants demonstrated greater improvements in sleep quality from pre- to post-intervention compared to control group. ANCOVA's also revealed that the yoga group has reduced sleep medication use

Therefore the research hypothesis **H₄** that is the mean post test quality of sleep scores in the experimental group is significantly higher than the mean post test quality of sleep scores in the control group was accepted.

OBJECTIVE 7

To find out the relationship between the post test level of stress and quality of sleep in experimental group

The findings of the study showed that there is a negative correlation ($r = -0.9$) between post test level of stress and quality of sleep among patients with cancer who are undergoing radiation therapy which is significant at $p < 0.05$ level. Hence it indicates that as the level of stress increases, quality of sleep decreases.

These findings are consistent with the findings of **Palesh et al., (2007)** who conducted a study among 93 women with metastatic breast cancer. They completed measures of life stress, and sleep disturbance at baseline, 4, 8 and 12 months. Greater life stress at baseline predicted more problems getting to sleep and more daytime sleepiness. Changes in number of hours of sleep was correlated with changes in problems getting to sleep ($r = -0.26$, $p < 0.01$), and changes in daytime sleepiness ($r = -0.21$, $p < 0.05$). This showed that there is a correlation between stress and sleep disturbance.

Therefore the research hypothesis **H₅** that is there will be a significant relationship between post test level of stress scores and quality of sleep scores among patient with cancer who are undergoing radiation therapy in experimental group was accepted.

OBJECTIVE 8

To find the association between the post test level of stress among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

Chi Square value were calculated to find out the association between post test level of stress scores among patients with cancer who are undergoing radiation therapy. The findings revealed that there was no significant association with the demographic variables such as age, sex, educational

status, occupational status, marital status, religion, type of family, area of residence, duration of illness, duration of treatment except sex ($\chi^2 = 6.003$), $p < 0.05$ and family monthly income ($\chi^2 = 16.362$), $p < 0.05$ in experimental group. This study was consistent with the study finding of **Sehlen.et.al, (2003)** who reported that women showed significantly higher stress ($p < 0.001$).

It revealed that there is no association between the level of stress among cancer patients with their selected demographic variables except for sex and family monthly income.

Therefore the research hypothesis **H₆** that is there will be a significant association between post test level of stress among patient with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group was rejected except for sex and family monthly income.

OBJECTIVE 9

To find the association between the post test quality of sleep scores among patients with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group.

Chi Square value were calculated to find out the association between post test quality of sleep scores among patients with cancer who are undergoing radiation therapy. The findings revealed that there was no significant association with the demographic variables such as age, sex, educational status, occupational status, marital status, religion, family monthly income, type of family, area of residence, duration of illness, duration of treatment except sex ($\chi^2 = 9.999$), $p < 0.05$ in experimental group.

These findings are consistent with the findings of **Karen Mustain., (2010)** who reported that 96% female had poor sleep quality. ANCOVAs with baseline values as covariates revealed significant differences in Sleep Quality (SQ) between groups at post- intervention.

It revealed that there is no association between the quality of sleep among cancer patients with their selected demographic variables except for sex.

Therefore the research hypothesis **H₇** that is there will be a significant association between post test quality of sleep scores among patient with cancer who are undergoing radiation therapy with their selected demographic variables in experimental group was rejected except for sex.

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATION AND LIMITATIONS

This chapter is discussed under 5 headings

1. Summary
2. Conclusion
3. Implications
4. Recommendation
5. Limitations

SUMMARY OF THE STUDY

The aim of the study was to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in Erode Cancer Center and H.C.G Cancer center at Erode. The design used for the present study was Quasi experimental non equivalent pre test and post test control group design. The conceptual frame work was based on modified Roy's Adaptation Model(1984). Sample size was 60, out of which 30 were in experimental group and 30 were in control group. The sample was selected by non-probability purposive sampling technique and the level of stress and quality of sleep was assessed by stress assessment rating scale and sleep assessment rating scale respectively.

Every day 5 samples were selected in both groups. For experimental group, on first day pre test was conducted and multi component intervention programme was demonstrated to the participants for 50 minutes in the morning and evening. From 2nd day onwards the participants were assisted to do yoga for 20 minutes, deep breathing exercises for 10 minutes and muscle relaxation exercises for 20 minutes for 20 days. After completion of 20 days of intervention, post test was conducted for both experimental and control group. The data was analyzed using descriptive statistics and inferential statistics.

MAJOR FINDINGS OF THE STUDY

The major findings are,

- ❖ In experimental group, among the patients with cancer undergoing radiation therapy majority 10(33%) belonged to the age group of 46-50 years and least 3(10%) belonged to the age group of 30-35 years. In control group majority of patients 12(40%) belonged to the age group of 51-55 years and least 3(10%) belonged to the age group of 30-35 years and 36-40 years.
- ❖ In experimental group, majority 20(67%) were females and least 10(33%) were males. In control group, majority 19(64%) were females and least 11(36%) were males.
- ❖ In experimental group, majority, 15(50%) had primary education and least 3(10%) had higher secondary education and 3(10%) had no formal education. In control group, majority 13(44%) had primary education and least 1(3%) was graduate.
- ❖ In experimental group , majority 15(50%) were coolie workers and least 3(10%) were government employee and private sector workers. In control group majority 15(50%) were coolie workers and least 1(3%) was self employed.
- ❖ In experimental group , majority 23(76%) were married and least 1(3%) was single. In control group majority 24(80%) were married and least 1(3%) was single and divorced.
- ❖ In experimental group, majority 18(60%) were Hindus and least 2(7%) were Muslim. In control group, majority of the patients 14(47%) were Hindus and least 7(23%) were Muslims.
- ❖ In experimental group majority 16(53%) were in monthly income of Rs 3000-Rs.8000 and least 1(3%) had an income above Rs. 18000. In control group majority 15(49%) were in monthly income of

Rs 3000-Rs.8000, and least 2 (7%) were in monthly income of Rs.13001.- Rs. 18000 and in monthly income of above Rs. 18000.

- ❖ In experimental group , majority 19(63%) were in nuclear family and least 11(37%) were in joint family. In control group majority 18(60%) were in nuclear family and least 12(40%) were in joint family.
- ❖ In experimental group majority of the patients with cancer undergoing radiation therapy 20(67%) were in rural area and least 10(33%) were in urban area. In control group majority of the patients with cancer undergoing radiation therapy 25(83%) were in rural area and least 5(17%) were in urban area.
- ❖ In experimental group majority 19(64%) had duration of illness for 1-3 years and least 1(3%) had the illness for more than 5 years. In control group majority 12(40%) had duration of illness for less than 1 year and least 2(7%) had the illness for more than 5 years.
- ❖ In experimental group majority of the patients 18(60%) had duration of treatment for 1-3 years and least 4 (13%) had a duration of treatment for 4 -5 years. In control group majority 12(40%) had duration of treatment for less than 1 year and least 1(3%) had the duration of treatment for more than 5 years.
- ❖ The post test mean score of level of stress 65.9 (SD \pm 9.06) is lower than the pre test mean score 81.3(SD \pm 7.8). The paired 't' value was 21.43 (table value= 2.0452), which was significant at $P < 0.05$ level and showed that, there is a significant reduction in level of stress in experimental group after multicomponent therapy
- ❖ The post test mean score of quality of sleep 48.03 (SD \pm 5.46) is higher than the pretest mean score 29.96(SD \pm 3.63). The paired 't' value was 27.36 (table value= 2.0452), which was significant at $P < 0.05$ level and showed that there is a significant improvement in the quality of sleep in experimental group after multicomponent therapy

- ❖ The mean post test score of level of stress in the experimental group 65.9 (SD \pm 9.06) was significantly lower than the mean post test level of stress in control group 84.46 (SD \pm 5.17). Independent 't' value was 10.88 (table value= 2.001) which was significant at $P < 0.05$ level. This showed that there is a significant reduction in the level of stress between experimental group and control group.
- ❖ The mean post test score of quality of sleep in the experimental group 48.03 (SD \pm 5.46) was significantly higher than the mean post test score of quality of sleep in control group 30.08 (SD \pm 4.3). Independent 't' value was 14.7 (table value= 2.001) which was significant at $P < 0.05$ level. This showed that there is a significant improvement in the quality of sleep between experimental group and control group.
- ❖ The correlation value between the post test level of stress and quality of sleep in experimental group is $r = -0.9$ which is significant at $p < 0.05$ level. This showed that there is a negative correlation between level of stress and quality of sleep, (i.e) as level of stress increases, quality of sleep decreases.
- ❖ The association between post test level of stress scores among patients with cancer who are undergoing radiation therapy with the selected demographic variables revealed that there was no significant association with demographic variables except for sex ($\chi^2 = 6.003$) and family monthly income ($\chi^2 = 16.362$) in experimental group
- ❖ The association between post test quality of sleep scores among patients with cancer who are undergoing radiation therapy with the selected demographic variables revealed that there was no significant association with demographic variables except for sex ($\chi^2 = 9.999$) in experimental group.

CONCLUSION

The present study was conducted to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode. The mean pre test scores of level of stress in experimental group is 81.3 (SD \pm 7.8) and post test mean score is 65.9 (SD \pm 9.06) respectively. The post test mean score was lower than the pre test mean score. The independent 't' value was 21.43 which was significant at $P < 0.05$ level. The mean pre test scores of quality of sleep scores in experimental group is 29.96 (SD \pm 3.63) and post test mean score is 48.03 (SD \pm 5.46) respectively. The post test mean score was higher than the pre test mean score. The independent 't' value was 27.36 which was significant at $P < 0.05$ level. The results of the study concluded that multicomponent intervention programme was effective in reducing stress and improving sleep among patients with cancer who are undergoing radiation therapy.

IMPLICATIONS

The findings of the study have certain important implication for nursing service, nursing education, nursing administration, and nursing research.

Nursing service

- ♣ The nurse can conduct in service education about the non pharmacological measures used in treating cancer patients.
- ♣ Nurse as the change agent, can introduce the various measures for the reduction of stress and improving good sleep among cancer patients who are undergoing radiation therapy in the ward.

Nursing education

- ♣ The nurse educator can orient the students with alternative therapies in reducing the level of stress and improving the quality of sleep among cancer patients who are undergoing radiation therapy.
- ♣ Nurse educators can motivate the students to do mini projects on measures to relieve stress and techniques to promote good sleep among patients with cancer who are undergoing radiation therapy.
- ♣ Nurse educators can conduct workshops/ seminars to update the knowledge of students to promote practicing relaxation techniques among patients with cancer who are undergoing radiation therapy.

Nursing administration

- ♣ Nurse administrator can organize continuing education programmes regarding promoting optimal wellbeing of the cancer patients who are undergoing radiation therapy.
- ♣ Nurse administrator can organise conferences and can enhance the knowledge and practice of relaxation techniques among patients with cancer who are undergoing radiation therapy in reducing stress and improving sleep.
- ♣ Nurse administrator can prepare and distribute information booklet about multicomponent intervention programme to patients with cancer

Nursing research

- ♣ The study findings can be a baseline for further studies to build upon for improving the body of knowledge in nursing
- ♣ The study findings can be effectively utilized by the emerging researchers to conduct further studies.

RECOMMENDATION

Based on the findings the following recommendations are stated,

- Similar study can be replicated in a larger samples thereby findings can be generalized to a large population.
- Comparative study can also be done between the effectiveness of various other non pharmacological measures on reducing discomfort such as stress and sleep.
- Comparative study can also be done between the effectiveness of yoga and muscle relaxation exercises on level of stress and quality of sleep.
- Experimental study can also be done between the effectiveness of multicomponent intervention on anxiety and depression in cancer patients.

LIMITATIONS

- ♣ It was time consuming for the researcher to clarify the doubts of the samples about multicomponent intervention.

BIBLIOGRAPHY

BOOKS

1. Alexander F.M. et.al., (2006). *Nursing practice*. (3rd ed). China : Elsevier, Pp.883-885.
2. Basavanthappa B.T.,(2003). *Medical surgical nursing*. (1st ed). New Delhi: Jaypee publication;Pp 398-403.
3. Black M.J.et.al.,(2001). *Medical surgical nursing*. (6th ed). Philadelphia: W.B.Saunders Co, Pp . 579-596.
4. Bolander B.V.(1994). *Basic nursing*. (3rd ed). Philadelphia: W.B.Saunders Co,Pp.267-298.
5. Brunner et.al., (2010). *Textbook of medical surgical nursing*. (10th ed). Lippincott Williams Wilkins; Pp 380-430.
6. Craven F.R.et.al.,(2003).*Fundamentals of nursing*.(4thed). Philadelphia: Lippincott publishers, Pp.1143-1166.
7. Delaune C.S.et.al.,(2006).*Fundamentals of nursing*. (3rd ed).Philadelphia: Delmar Thomson publishers, Pp. 1115-1125.
8. Gates A.R. et.al.,(1997).*Oncology nursing secrets*. India: Jaypee brothers ,p.5.
9. Javed Ansari., (2010), *PV textbook of medical surgical nursing II*. (1st ed). India; PV publication; Pp 1142-1144.
10. Leahy M. J.,(1998).*Foundations of nursing practice* .Philadelphia W.B. Saunders Co, Pp.101-130.
11. Lewis L.S.,(2011). *Medical surgical nursing* . (7th ed).Missouri: Mosby Publishers ,p .279.
12. Linda et.al.,(1999). *Understanding medical surgical nursing*. USA: F.A.Davis, Pp 886-888.
13. Mehta S.R.et.al.,(2007). *Oncology nursing secrets*. India: Jaypee brothers , Pp.35-40.
14. Patricia P.,(2001). *Fundamentals of nursing*. (5th ed). Philadelphia: St. Louis, Pp.693-689.

15. Potter and Perry.,(2004). **Basic Nursing**. (5thed). Philadelphia : Mosby publications, Pp. 370-387.
16. Prabhahara N.G.,(2006). **Biostatistics**. (1st ed). India: Jaypee brothers, Pp.302- 304.
17. Stephen F.,(1991). **A holistic guide to medical treatment**. (1st ed). P. 8,54.
18. Snyder M.et.al.,(2006).**Complementary and alternative therapies in nursing** .New York: Springer publishing company , Pp. 255-267.
19. Taylor C.et.al.,(2005). **Fundamentals of nursing**. (5th ed). Philadelphia: Lippincott publishers, Pp.1167-1192.
20. Tiffany R .,(1980).**Cancer nursing**. London: Faber &Faber Ltd.
21. Varma.et.al.,(2005). **Psychotherapy in a traditional society**. P.37
22. White L.,(2002). **Basic nursing foundations of skills and concepts**. London: Delmar Thomson publishers, Pp.323-333.

JOURNALS

23. Anderson J.L.,(1989). The nurse's role in cancer rehabilitation. **Cancer nursing**. Pp. 85-94
24. Busyee C.F.et.al.,(1989). The Pittsburg Sleep quality index . **A new instrument for psychiatric practice and research**. Pp.193-213.
25. Bell M.R.,(2010). A review of complementary and alternative medicine practice among cancer survivors, **Clinical journal of oncology**, Pp.365-370.
26. Deepak Ganjewala.,(2009). Prevalence of cancers in some part of Madhya Pradesh and Uttar Pradesh in India. **Academic journal of Cancer research**.Pp.12-18.
27. Duhamel.et.al.,(2010). An examination of distress, sleep and fatigue in metastatic breast cancer patients. **Psychooncology**. P.22
28. Kanmani., (2009). A study to evaluate the effectiveness of progressive muscle relaxation in reducing anxiety among cancer patients. **The official journal of Trained Nurses Association of India**. Pp.12-14.

29. Khurhsid.,(2009). Effect of muscle relaxation on stress level of cancer breast patients. *Nightingale nursing times*. P.3247.
30. Lakwinder K.,(2006). Influence of complementary therapies on health. *Indian journal of holistic nursing*. Pp.12-13.
31. Puthusseril V.,(2008). Impact of simple rhythmic breathing, relaxation and foot massage on anxiety, depression, and quality of life of breast cancer patients undergoing radiation therapy. *The official journal of Trained Nurses Association of India*. Pp.29-33.
32. Raghuram.,(2010). Stress and yoga. *Health action*. Pp.7-9.
33. Sehlen.,(2003). Psychosocial distress in cancer patients during and after radiotherapy. *Strahlenther onkol*. Pp. 175-180.
34. Shalini M.et.al.,(2008). Effectiveness of progressive muscle relaxation therapy upon patients with sleep deprivation. *Indian journal of holistic nursing*. Pp.30-33.
35. Swaminathan R.et.al.,(2011). Trends in cancer incidence in Chennai city and statewide predictions of future burden in Tamil Nadu. *The national medical journal of India*. Pp.72-77
36. Swamy P.,(2011). Use of complementary therapies in cancer patients. *Nightingale nursing times*.Pp. 28-32.
37. Tritter J.Q.et.al.,(2002). Cancer as a chronic illness. *European journal of cancer care*. Pp. 161-165
38. Tsay S.L.et.al.,(2003).Improving quality of sleep and quality of life in patients with ESRD *Journal of advanced nursing*.P.42.

NET REFERENCE

39. <http://www.ncbi.nlm.nih.gov/pubmed.com>
40. <http://www.wikipedia.com>
41. <http://www.springerlink.com>
42. <http://www.fallasleepin15min.com>
43. <http://www.ncbi.nih.gov>
44. <http://www.cancer.org>

45. <http://www.wordiq.com>
46. <http://www.anticancer.com>
47. <http://albanacupuncture.com>
48. <http://cancer.gov/grants/abstracts.asp>
49. <http://www.amazon.com/erec/tg/detail>
50. <http://www.medicalnewstoday.com/articles/74062.php>
51. <http://www.shiatsu.esf.org/english/training.html>
52. <http://www.myyogaonline.com/articles>
53. <http://www.canceranswer.com.au>
54. <http://www.cancernet.nci.nih.gov>
55. <http://ajp.psychiatryonline.org/cgi/content/full/163/10/1791>
56. <http://www.sciencedaily.com/releases/2009/htm>
57. <http://www.medicinenet.com/htm>
58. <http://info.cancerresearchuk.org/cancerstats>
59. <http://www.health.state.mn.us/divs/hpcd/chronic.html>
60. <http://www.cancercure.org/choiceoftherapy.htm>
61. <http://www.health.am/psy.htm>
62. <http://www.jainworld.com/preksha/tulsi/atpt28.htm>
63. <http://jco.ascopubs.org/content/early.jco.htm>
64. <http://pmj.sagepub.com/content/23/1/46.abstract>
65. <http://www.livestrong.com/article/136646>
66. <http://www.cancernetwork.com/integrative-oncology/content>

APPENDIX – A



ERODE CANCER CENTRE

Velavan Nagar (Near Chinthamani Petrol Bunk),
Perundurai Road, Thindal, **ERODE - 638 012. TAMIL NADU**
Fax : 0424-2431802 E-mail : kvels@rediffmail.com

☎ : 0424 - 2339704,
2910700,
Cell : 98428 - 22443

Date :
06-07-2011

To

The Principal,
Bishop's College of Nursing,
C.S.I. Mission Compound,
Dharapuram,
Tirupur District-638656

Madam/ Sir,

Herewith we confirm your student Ms.T.J. Glads Robala, M.Sc (N) II Year student to do her project on "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode" in our hospital.

She has to abide the rules and regulations of our hospital.

Dr. K. VELAVAN, M.D.RT.,
Reg. No. 52086
Consultant Oncologist
ERODE CANCER CENTRE
Velavan Nagar, Perundurai Road,
Thindal. **ERODE - 638 009**
Medical Director



adding life to years
3-D Dual Energy Linear Accelerator
South Asia's Largest Cancer Care Network

Cancer Center

Dr. P. Suthahar MDRT
Consultant Radiation Oncologist
Admin. In - charge

14.07.2011

To:
The Principal,
Bishop's College of Nursing
Dharapuram.

Dear Sir/Madam

Sub: Permission to carryout research for Ms. Glads Robala T.J. II-year M.Sc (Nursing) Student, study on, "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospital at Erode."- regarding.

With reference to your letter, the student is permitted to undergo research in our institution, subject to the following terms and conditions:

1. He/She should abide to the hospital rules and regulations.
2. He/She should not unnecessarily interfere with patients.

Regards,

Dr.P.Suthahar

Medical Director and Consultant Oncologist



Dr. P. Suthahar MDRT
Consultant Radiation Oncologist
Admin. In-Charge

547, Perundurai Road, Natesar Mill Compound, ERODE - 638 011. Ph : 0424 - 2262035, 4021845, Fax : 4021545
web : www.hcgoncology.com e-mail : erodehcgonco@gmail.com

Excellence in Oncology Care and Research

APPENDIX - B

LETTER SEEKING EXPERT'S OPINION FOR CONTENT VALIDITY

From

Ms. T.J.Glads Robala,
M.Sc (Nursing) II Year,
Bishop's College of Nursing,
Dharapuram.

To

Respected Madam / Sir,

Sub : Requisition for content validity of tool

I am doing M.Sc(Nursing) II year in Bishop's College of nursing, Dharapuram under The T.N. Dr.M.G.R. Medical University,Guindy, Chennai. As a partial fulfilment of my M.Sc(Nursing) Degree programme, I am conducting a research on , **“A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode”**. A tool has been developed for the research study. I am sending the above stated for your expert and valuable opinion.I will be thankful for your kind consideration. Kindly return it to the undersigned.

Thanking you,

Yours sincerely,

(T.J.Glads Robala)

Enclosure:

- 1) Certificate of content validity
- 2) Statement of problem, objectives, operational definition, hypothesis
- 3) Description of the tool and tool for data collection
- 4) Self addressed envelope

APPENDIX - C

MEDICAL SURGICAL NURSING LIST OF EXPERTS OF VALIDATION

- 1) Dr. P. Suthahar, MDRT.,
Consultant Radiation Oncologist
H.C.G Cancer Centre,
Erode district
- 2) Dr. R. Sampath, M.D.,DMRT.,
Consultant Radiation Oncologist
Erode Cancer Centre,
Erode district
- 3) Dr. Mrs.Shanthi Appavu, Ph.D(N).,
Principal,
Christian college of Nursing,
Neyyoor, K.K. District
- 4) Dr. Mrs. Sara, Ph.D(N).,
HOD, Medical Surgical Nursing Department
Rani meyanmai college of nursing,
Annamalai university,
Chithambaram
- 5) Prof. Mr.S. Victor Devasirvadam,M.Sc(N),Ph.D(N)
Vice Principal,
Sara nursing college,
Dharapuram,
Tirupur district
- 6) Prof. Mr. Balasubramaniam,M.Sc (N)
Medical Surgical Nursing Department
KMCH college of nursing,
Coimbatore

APPENDIX - D

CERTIFICATE FOR VALIDITY

This is to certify that the interview schedule and rating scale on "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals, Erode" has been validated by me and found appropriate with mentioned suggestions.



Signature :

Name :

Designation :

Dr. P. Suthahar MDRT
Consultant Radiation Oncologist
Admin. In-Charge

College :

CERTIFICATE FOR VALIDITY

This is to certify that the interview schedule and rating scale on "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals, Erode" has been validated by me and found appropriate with mentioned suggestions.



Signature :

Name :

Dr. R. Sampath

Designation :

MD. PhD.
Radiation Oncologist

College :

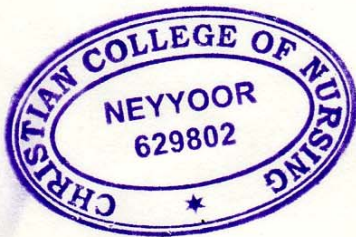
E.C.C. → Consultant
Chd

Dr. R. SAMPATH, MD., DMRT
Consultant Radiation Oncologist
Reg. No : 20327

ERODE CANCER CENTRE
PERUNDURAI ROAD, THINDAL
ERODE - 638 012.

CERTIFICATE FOR VALIDITY

This is to certify that the interview schedule and rating scale on "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals, Erode" has been validated by me and found appropriate with mentioned suggestions.



Signature :

A handwritten signature in green ink, consisting of stylized letters.

Name

PRINCIPAL
CHRISTIAN COLLEGE OF NURSING
NEYYOOR-629802
K.K.DIST., TAMILNADU
SOUTH INDIA.

Designation :

College :

APPENDIX-D

CERTIFICATE FOR VALIDITY

This is to certify that the interview schedule and rating scale on "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals, Erode" has been validated by me and found appropriate with mentioned suggestions.



Signature : 

Name : B. SARA

Designation : READER IN NURSING

College : RANIMEYAMMAI COLLEGE OF
NURSING
ANNAMALAI UNIVERSITY.

READER
DEPARTMENT OF NURSING
ANNAMALAI UNIVERSITY.

CERTIFICATE FOR VALIDITY

This is to certify that the interview schedule and rating scale on "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals, Erode" has been validated by me and found appropriate with mentioned suggestions.



Signature :

Name :

B. SARA

Designation :

READER IN NURSING

College :

RANIMEYANMAI COLLEGE OF
NURSING
ANNAMALAI UNIVERSITY

READER
DEPARTMENT OF NURSING
ANNAMALAI UNIVERSITY

CERTIFICATE FOR VALIDITY

This is to certify that the interview schedule and rating scale on "A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals, Erode" has been validated by me and found appropriate with mentioned suggestions.



Signature : *K. Balasubramanian*

Name : *K. BALASUBRAMANIAN,*

Designation : *Professor.*

College : *KMC College of Nursing
Coimbatore.*

APPENDIX - E

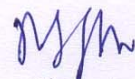
CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation work, **A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode**, done by Ms. T.J. Glads Robala, II year M.Sc (Nursing) student of Bishop's college of Nursing, Dharapuram is edited for English language appropriateness by P. SAMPATH

Date :

Address :



Signature

(P.SAMPATH)

**P.SAMPATH, M.A., M.Phil., M.Ed.,
Lecturer in English,
Maharani Teacher Training Institute,
Dharapuram.**

APPENDIX - F

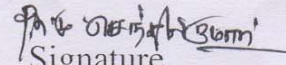
CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation work, **A study to evaluate the effectiveness of multicomponent intervention on stress and quality of sleep among patients with cancer who are undergoing radiation therapy in selected hospitals at Erode**, done by Ms. T.J. Glads Robala, II year M.Sc (Nursing) student of Bishop's college of Nursing, Dharapuram is edited for Tamil language appropriateness by தா.மு. செந்தில்குமார்



Date :

Address :


Signature

D.M.SENTHIL KUMAR, M.A.,B.Ed.,M.Phil.
Guest Lecturer.
Department of Tamil,
Alagappa University Study Centre,
DHARAPURAM - 638656.

APPENDIX - G

Vazhga Vaiyagam	Vazhga Valamudan
	
THE WORLD COMMUNITY SERVICE CENTRE	
26, Second Seaward Street, Valmikinagar, Thiruvannamiyur, Chennai - 600 041 Tel : 044 - 24411692	
This is to certify that	
Thava Selvar / Thava Selvi <u>T. J. GLADS ROBALA</u>	
<u>BISHOP'S COLLEGE OF NURSES</u>	
has successfully completed the	
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"><p style="text-align: center;">AGATHAIVU COURSE - FIRST STAGE (அகத்தாய்வு - முதல் நிலை) in Simplified Kundalini Yoga (Manavalakalai)</p></div>	
Regd.No.220 Phone : 04258-223689	
Dharaputram Manavalakalai Mandram Trust	
held at <u>Viji Nam, No.2, M.G.C.O.Colony,</u>	
<u>Pollachi Road, DHARAPURAM-638 656</u>	
awarded this day of <u>S.S.U.K.S.U</u>	
Be blessed with Divine Power.	
	<p style="text-align: right;"><u>P. Pathombar</u> For THE PRESIDENT WCSC</p>

APPENDIX - H
PART – I
DEMOGRAPHIC VARIABLES

- 1) Age
 - a. 30 –35 years
 - b. 36 –40years
 - c. 41– 45 years
 - d. 46 – 50 years
 - e. 51 - 55 years
- 2) Sex
 - a. Male
 - b. Female
- 3) Educational status
 - a. No formal education
 - b. Primary education
 - c. High school education
 - d. Higher secondary education
 - e. Graduate
- 4) Occupational status
 - a. Unemployed
 - b. Coolie
 - c. Government employee
 - d. Private sector worker
 - e. Self employment
- 5) Marital Status
 - a. Single
 - b. Married
 - c. Widow
 - d. Divorced
 - e. Separate

6) Religion

- a. Hindu
- b. Muslim
- c. Christian
- d. Others

7) Family monthly income

- a. Rs.3000 – Rs.8000
- b. Rs.8001 – Rs 13000
- c. Rs.13001 – Rs 18000
- d. Rs.18001 and above

8) Type of family

- a. Nuclear family
- b. Joint family

9) Area of residence

- a. Urban
- b. Rural

10) Duration of illness

- a. < 1 year
- b. 1-3 years
- c. 4-5 years
- d. > 5 years

11)Duration of treatment

- a. < 1 year
- b. 1- 3 years
- c. 4-5 years
- d. > 5 years

PART II
STRESS ASSESSMENT RATING SCALE

Listen carefully to each question and choose the best response which applies to you

Sl. No	STATEMENT	Almost Never	Some times	Often	Fairly often	Very often
		1	2	3	4	5
1	I often feel tired and weak					
2	I am suffering pain due to surgery/illness					
3	I feel unconfident in relationships with other people					
4	I am suffering pain due to unknown causes (headaches, lower back pain, belly aches)					
5	I am afraid of the progression of my disease					
6	Other people often react unsympathetic					
7	Body care has become difficult since I developed cancer					
8	I am afraid of developing pain					
9	I have the feeling to be of less value of other people					
10	I am afraid of having to go to the hospital again					
11	I feel physically imperfect					
12	I cannot follow my hobbies (e.g. sports) as much as before I developed cancer					

13	I often have trouble sleeping					
14	I am afraid of not being able to work anymore.					
15	I do not feel well informed about my illness/ treatment					
16	I am often tense and nervous					
17	I have had sex less frequently since developing cancer					
18	I do not feel adequately informed about possibilities for social/financial support					
19	It is difficult to talk with my family about my situation					
20	Since I developed cancer, I have been going out less (to the movies, out to eat, visiting friends etc.,)					
21	Different doctors gave different informations about my illness					
22	I have too few opportunities to talk about emotional problems with a specialist					
23	It is difficult for my spouse/ partner to empathise my situation					

PART-III
SLEEP ASSESSMENT RATING SCALE

Listen carefully to each question and choose the best response which applies to you

1) How long did it take for you to fall asleep during the past 4 weeks ?

0 - 15 minutes 1

16 - 30 minutes 2

31 - 45 minutes 3

46 -60 minutes 4

More than 60 minutes 5

2) On the average, how many hours did you sleep each night during the past 4 weeks ?

0 – 2 hours 1

3 – 4 hours 2

5 – 6 hours 3

7 – 8 hours 4

Sl No	STATEMENT	All of the time 1	Most of the time 2	A good bit of the time 3	Some of the time 4	A little bit of the time 5	None of the time 6
3	How often do you feel that your sleep was not quiet (moving restlessly, feeling tense, speaking, etc., while sleeping) ?						
4	How often did you get enough sleep to feel rested upon waking in the morning?						
5	How often did you awaken short of breath or with a headache?						
6	How often did you feel drowsy or sleepy during the day?						
7	How often did you have trouble falling asleep?						
8	How often did you awaken during your sleep time and have trouble falling asleep again?						
9	How often did you have trouble staying awake during the day?						
10	How often did you snore during your sleep?						
11	How often did you take naps (5 minutes or longer) during the day?						
12	How often did you get the amount of sleep you needed?						

பகுதி - I

சுயவிபர பதிவேடு

பின்வரும் கேள்விகளை கவனமாக கேட்டு, அதில் தங்களுக்கு
பொருத்தமானவற்றை தெரிவிக்கவும்

1) வயது

- அ) 30-35 ஆண்டுகள்
- ஆ) 36-40 ஆண்டுகள்
- இ) 41-45 ஆண்டுகள்
- ஈ) 46-50 ஆண்டுகள்
- உ) 51-55 ஆண்டுகள்

2) பாலினம்

- அ) ஆண்
- ஆ) பெண்

3) கல்வித் தகுதி

- அ) முறையான கல்வி இல்லை
- ஆ) தொடக்கக் கல்வி
- இ) உயர்நிலைக் கல்வி
- ஈ) மேல்நிலைக் கல்வி
- உ) பட்டதாரி

4) பணி

- அ) வேலை இல்லை
- ஆ) கூலி
- இ) அரசு ஊழியர்
- ஈ) தனியார் நிறுவன ஊழியர்
- உ) சுய தொழில்

5) திருமண நிலை

- அ) தனி
- ஆ) திருமணமானவர்
- இ) விதவை
- ஈ) விவாகரத்தானவர்
- உ) பிரிந்து வாழ்பவர்

6) மதம்

- அ) இந்து
- ஆ) இஸ்லாமியர்
- இ) கிறிஸ்தவர்
- ஈ) பிற

7) குடும்ப மாத வருமானம்

- அ) ரூ.3000 - ரூ.8000
- ஆ) ரூ.8001 - ரூ.13000
- இ) ரூ.13001 - ரூ.18000
- ஈ) ரூ.18001 மற்றும் அதற்கு மேல்

8) குடும்ப வகை

- அ) தனி குடும்பம்
- ஆ) கூட்டுக் குடும்பம்

9) வசிப்பிடம்

- அ) நகர்ப்புறம்
- ஆ) கிராமப்புறம்

10) நோயின் கால அளவு

- அ) < 1 வருடம்
- ஆ) 1-3 வருடங்கள்
- இ) 4-5 வருடங்கள்
- ஈ) > 5 வருடங்கள்

11) சிகிச்சை எடுத்துக் கொள்ளும் காலஅளவு

- அ) < 1 வருடம்
- ஆ) 1-3 வருடங்கள்
- இ) 4-5 வருடங்கள்
- ஈ) > 5 வருடங்கள்

பகுதி II
மன அழுத்தத்தை அறியும் அளவுகோல்

பின் வரும் கேள்விகளை கவனமாக கேட்டு, அதில் தங்களுக்கு பொருத்தமானவற்றை தெரிவிக்கவும்

வ. எண்	கேள்விகள்	ஒருபோதும் இல்லை	சில நேரங்களில்	எப்பொழுதாவது	பல நேரங்களில்	எப்பொழுதும்
1	நான் களைப்பாகவும் பலவீனமாகவும் உணர்கிறேன்					
2	அறுவை சிகிச்சையால் / வியாதியினால் எனக்கு வலி இருக்கிறது					
3	பிறருடனான உறவுகளில் எனக்கு நம்பிக்கை இன்மையை உணர்கிறேன்					
4	தெரியாத காரணங்களால் எனக்கு வலி இருக்கிறது (தலைவலி, இடுப்பு வலி, வயிற்று வலி)					
5	என் நோயின் முன்னேற்றத்தைக் குறித்து நான் பயப்படுகிறேன்.					
6	பிறர் என்னிடம் இரக்கமில்லாது நடந்து கொள்கின்றனர்					
7	எனக்கு புற்றுநோய் இருப்பதால் என்னால் என் உடலை சரிவர கவனித்துக் கொள்ள இயலவில்லை					
8	வலி ஏற்படுவதைக் குறித்து நான் பயப்படுகிறேன்.					
9	பிறரிடம் என் மீதான மதிப்பு குறைந்து விட்டதாக உணர்கிறேன்					
10	மறுபடியும் மருத்துவமனை செல்வதைக் குறித்து நான் பயப்படுகிறேன்.					
11	உடலளவில் சரியில்லாது இருப்பதாக உணர்கிறேன்.					
12	என்னால் புற்றுநோய்க்கு முன்பு இருந்ததைப் போல் இப்போது பொழுதுபோக்குகளில் ஈடுபட இயலவில்லை (எ.கா. விளையாட்டு)					
13	எனக்கு உறங்குவதில் பிரச்சனை ஏற்படுகிறது					
14	என்னால் பணி செய்ய இயலாதோ என அஞ்சுகிறேன்					

வ. எண்	கேள்விகள்	ஒருபோதும் இல்லை	சில நேரங்களில்	எப்பொழுதாவது	பல நேரங்களில்	எப்பொழுதும்
15	என் நோயைக் குறித்தும், சிகிச்சையைக் குறித்தும் எனக்கு சரியான தகவல் கிடைப்பதில்லை					
16	நான் மன அழுத்தமாகவும் பதட்டமாகவும் உணர்கிறேன்.					
17	எனக்கு புற்றுநோய் வந்தபிறகு உடலுறவில் குறைவாகவே ஈடுபடுகிறேன்					
18	சமூக மற்றும் பொருளாதார உதவி குறித்து சரியான தகவல்கள் கிடைப்பதில்லை என உணர்கிறேன்.					
19	என் நிலையைக் குறித்து என் குடும்பத்துடன் பேசுவது கடினமாக இருக்கிறது					
20	புற்றுநோய் வந்த பிறகு நான் குறைவாகவே வெளியே செல்கிறேன் (திரைப்படங்களுக்கு, உணவிற்கு, நண்பர்களை சந்திக்க)					
21	என் நோய்குறித்து வெவ்வேறு மருத்துவர்கள் வெவ்வேறு தகவல்களை தெரிவிக்கின்றனர்					
22	சிறப்பு மருத்துவரிடம் என் நிலையைக் குறித்து பேசும் வாய்ப்புகள் எனக்கு குறைவாகவே இருக்கின்றன.					
23	என் நிலையை என் வாழ்க்கைத் துணை புரிந்து கொள்வது கடினம்					

பகுதி II
உறக்கத்தின் தன்மையை அறியும் அளவுகோல்

பின் வரும் கேள்விகளை கவனமாக கேட்டு, அதில் தங்களுக்கு பொருத்தமானவற்றை தெரிவிக்கவும்

1. கடந்த 4 வாரங்களாக உறங்கத் துவங்குவதற்கு எவ்வளவு நேரம் ஆகிறது ?

- அ) 0 - 5 நிமிடங்கள்
- ஆ) 16 - 30 நிமிடங்கள்
- இ) 31 - 45 நிமிடங்கள்
- ஈ) 46 - 60 நிமிடங்கள்
- உ) 60 நிமிடங்களுக்கு மேல்

2. சராசரியாக கடந்த 4 வாரங்களில் ஒவ்வொரு இரவும் நீங்கள் எவ்வளவு மணி நேரம் உறங்கினீர்கள் ?

- அ) 0 - 2 மணி நேரம்
- ஆ) 3 - 4 மணி நேரம்
- இ) 5 - 6 மணி நேரம்
- ஈ) 7 - 8 மணி நேரம்

3. கடந்த நான்கு வாரங்களில் நீங்கள்

வ எண்	கேள்விகள்	எப்போதும்	மிகப் பல நேரங்களில்	பல நேரங்களில்	நேரங்களில் சில	மிகச் சில நேரங்களில்	ஒருபோதும் இல்லை
3	தங்கள் உறக்கம் அமைதி இன்றி இருப்பதாக உணர்கிறீர்களா? (பதட்டமடைதல், அமைதியற்று இருத்தல், பேசுதல்)						
4	உறங்கி எழுகையில் நன்கு உறங்கியது போல் உணர்கிறீர்களா?						
5	மூச்சுத்திணறலுடன் எழுந்திருத்தல் /தலைவலியுடன் எழுந்திருத்தல் ஏற்பட்டதா?						
6	பகலில் உறக்கமாக (அ) சோர்வாக உணர்தல் ஏற்பட்டதா?						
7	உறங்கத்துவங்குவதில் பிரச்சனை இருக்கிறதா?						
8	உறக்கத்திலிருந்து எழுதல் மற்றும் மறுபடியும் உறங்கத் தாமதமாதல் ஏற்பட்டதா?						
9	பகலில் விழித்திருப்பதில் ஏதேனும் கஷ்டம் ஏற்படுகிறதா?						
10	உங்கள் உறக்கத்தின் போது குறட்டை விடுகிறீர்களா?						
11	குட்டித்தூக்கம் (5 நிமிடங்கள் (அ) அதற்கு மேல்) போடுகிறீர்களா?						
12	உங்களுக்கு தேவையான அளவு உறங்குகிறீர்களா?						

APPENDIX – I
INFORMATION BOOKLET ON YOGA, DEEP
BREATHING EXERCISE AND MUSCLE RELAXATION EXERCISE

Respected Sir/Madam

Kindly go through the booklet in a systematic way from the beginning to the end to learn how to use yoga, deep breathing exercise and muscle strengthening exercise which helps to understand how it is useful to relieve stress and improve the quality of sleep. After reading this you will be able to understand about yoga, deep breathing exercise and muscle strengthening exercise.

GENERAL INSTRUCTIONS:

1. Yoga should be done in the morning in empty stomach or 4 hrs after food in the evening
2. Yoga must be done after ½ an hour if you had water , tea or coffee
3. It is good to have food 15 minutes after exercise
4. Choose a calm and clean environment to do yoga
5. Do yoga over a spread sheet
6. Clothing must be loose and comfortable while doing yoga
7. Yoga should be with held 3 days during periods

COMMON BENEFITS:

1. Promotes oneness of mind
2. Reduces stress and improves sleep
3. Provides comfort
4. Provides rest to both body and mind
5. Reduces tiredness
6. It refreshes the body cells
7. It improves the work ability of both body and mind

8. It prevents and cure diseases
9. Improves the immunity of the body

I) YOGA

1) PADMASANA:



Steps:

- a) Sit on the mat/ sheet with legs crossed, and spine long and extended
- b) Take the right foot and place the ankle along the inside of the left thigh and take the left foot and place the ankle along the inside of the right thigh.
- c) Place the hands on the thighs and make the tip of thumb touches the tip of the index finger and sit in a meditation posture
- d) Continue it for 4 minutes

If Padmasana posture is difficult to practice , you can do any of the following Asana (A or B)

A) SIDDHASANA :



Steps :

- a. Sit with legs stretched forward.
- b. Bend the left leg, and place it near the perineum. The sole of the left foot is placed under the right thigh.
- c. Bend the right leg, place the right foot over the left ankle, and the heel of the right foot at the root of the genitals.
- d. Maintain the spine, neck and head in a straight, upright posture.
- e. Place both hands near the thigh joints, slightly bend at elbows on either side; join the index fingers and thumbs respectively and sit in a meditation state.

B) SUKHASANA:



Steps :

- a) Sit down on the mat/ sheet

- b) Stretch the legs in front.
- c) Keep the head, neck and spine erect.
- d) Fold the left leg at the knee and bring it closer to the body.
- e) Lift the right knee and slide the left foot under the right thigh. The sole of the left foot should be turned up.
- f) Similarly, fold the right leg and put the right foot under the left calf.
- g) The sole should be tilted up and the foot should support the left shin.
- h) Place the hands on the thighs and make the tip of thumb touches the tip of the index finger and sit in a meditation state

2) VAJRASANA



Steps:

- a) With knees, ankles and big toes touching the ground, take a kneeling position.
- b) Sit on the heels and place palms on the knees.
- c) The Spine should be erect and take deep breaths.
- d) Continue it for 3 minutes.

3) SAVASANA:



Steps:

- a) Start by sitting straight up, legs extended together in front .
- b) Softly roll the back vertebrae by vertebrae on to the floor, forming a straight line with the body
- c) Slowly move the feet apart a little wider than the hips.
- d) Place the arms out to the sides of the body, facing the palms upwards.
- e) Take deep breaths
- f) Continue it for 5 minutes.

4) DANDASANA:



Steps:

- a) Sit with legs stretched forward.
- b) Place the palms beside the body on the floor.

- c) The buttocks, bottom of the thighs, calf muscles and heels are kept in a straight line on the floor and the back, shoulder, neck and head are kept upright.
- d) Stretch the legs forward keeping them pressed on the floor, and flex the knuckles of the toes.
- e) Do not allow the back to bend. Pull in the abdomen slightly, and expand the chest.
- f) Remain in this pose for 30 seconds. Repeat this 2 times.

5) TADASANA:



Steps:

- a) Stand erect, legs together, hands by the side of the thighs. Gaze in front.
- b) Raise the hands straight in front up to arms , palms facing each other.
- c) Bring the hands up straight towards sky , fingers pointing upward.
- d) Now slowly raise the heels and stand on toes. Raise heels as much as possible.

- e) While returning to the original position, bring the heels on the ground first.
- f) Slowly bring down the hands also.

6. PRAYANAMA

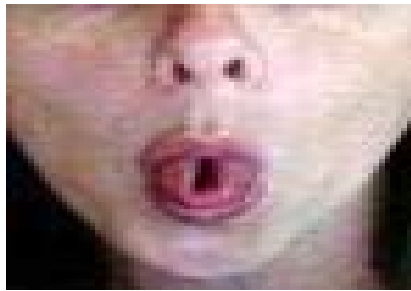
A) Nadi Sodhana Pranayama:



Steps :

- a) Sit in Padmasana, Siddhasana or Sukhasana on a carpet or blanket.
- b) Keep the waist, back, neck and spine erect.
- c) Sit peacefully and breathe normally.
- d) Close the eyes. Close the right nostril with the right thumb.
- e) Inhale slowly through the left nostril and fill the lungs.
- f) After complete inhalation, press the left nostril with the ring finger of the right hand and close the left nostril.
- g) Open the right nostril, exhale and breathe slowly out.
- h) After complete exhalation, again inhale through the right nostril and fill the lungs.
- i) Close the right nostril by pressing it with the right thumb.
- j) After opening the left nostril, breathe out slowly
- k) Continue doing this exercise for around 10 - 15 times in 4 minutes

B) Shitali Pranayama:



Steps:

- a) Sit in a comfortable position with legs and take five deep breaths
- b) Open the mouth in a "o" shape and start to inhale through the mouth.
- c) Exhale with the nose.
- d) Repeat this exercise for five to ten times in 4 minutes.

II) DEEP BREATHING EXERCISE :

The 4-7-8 breath Exercise



Steps:

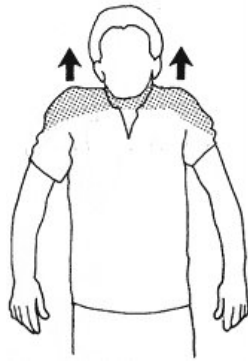
- a) Sit in a comfortable position
- b) Place the tip of the tongue against the ridge of tissue just behind the upper front teeth
- c) Exhale completely through the mouth, with whoosh sound.
- d) Close the mouth and inhale quietly through the nose to a mental count of 4
- e) Hold the breath for a count of 7
- f) Exhale completely through the mouth, making a whoosh sound to a count of 8
- g) Do the exercise for 10 minutes

III) MUSCLE RELAXATION EXERCISE :

- ❖ Feel the difference while tensing and relaxing different muscle groups
- ❖ Tense every muscle group for 5-10 seconds and relax it for 10 seconds

Steps:

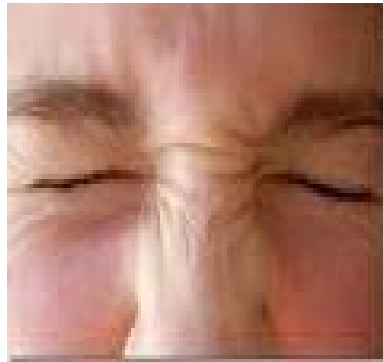
- a) Sit in a comfortable chair
- b) Bring attention to left hand. Clench left hand make a fist and than relax it. Repeat this for 2 times
- c) Bring attention to right hand. Clench left hand make a fist and than relax it. Repeat this for 2 times
- d) Bend both hands back at the wrist. Repeat this for 2 times
- e) Make a tight fist with both hands, and pull hands toward shoulders. Repeat this for 2 times
- f) Shrug the shoulders Hold it, then relax the shoulders Repeat this for 2 times.



- g) Wrinkle forehead. Tense those muscles and then relax
Repeat this for 2 times



- h) Close the eyes as tightly as possible. Feel tension all around the eyes.
After holding this state, relax. Repeat this for 2 times



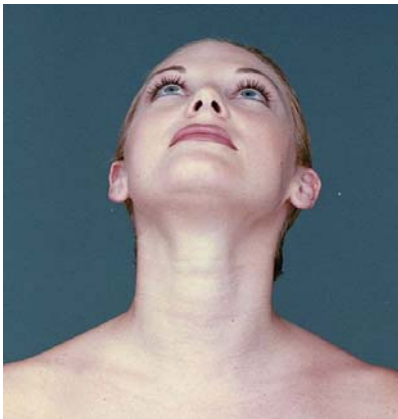
- i) Clench the jaw, biting the teeth together . Then relax.
Repeat this for 2 times



- J) Press the lips together as tightly as possible. Now relax the lips. Repeat this for 2 times



- K) Bring attention to the neck. Put the head back and press the back of the head against the back of the chair and then relax. Repeat this for 2 times



- l) Bring head forward. Push chin against the chest . Hold it, then relax. Repeat this for 2 times .
- m) Arch back, sticking out the chest and stomach . Then allow those muscles to become loose. Repeat this for 2 times

- o) Tense the stomach muscles and then relax it. Repeat this for 2 times
Bring attention to legs. Lift up and stretch them out.
- p) Feel the tension in the thighs. Then, let legs drop, relaxing the thigh muscles. Repeat this for 2 times



Thank You

தகவல் கையேடு

யோகா, மூச்சுப்பயிற்சி மற்றும் தசைகளை தளர்த்தும் பயிற்சி

மதிப்பிற்குரிய அம்மா/ ஐயா,

வணக்கம், தயவு கூர்ந்து இந்த புத்தகத்தை ஆரம்பம் முதல் கடைசி வரை படிக்கவும். இதில் எப்படி யோகா, ஆழமான மூச்சுப்பயிற்சி மற்றும் தசைகளை தளர்த்தும் பயிற்சி செய்ய வேண்டும் மற்றும் அது எந்த விதத்தில் மன அழுத்தத்தையும், தூக்கமின்மையும் குறைக்க உதவுகிறது என்றும் குறிப்பிடப்பட்டுள்ளது. இதை படிப்பதின் மூலம் மன அழுத்தத்தையும் மற்றும் தூக்கமின்மையையும் எப்படி குறைக்கலாம் என்பதை நீங்கள் அறிந்து கொள்ளாம்.

பொதுவாக கடைபிடிக்கவேண்டியவை :-

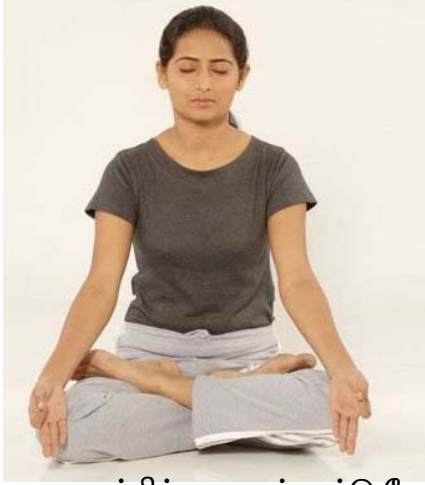
- 1) அதிகாலை காலை வெறும் வயிற்றிலும், மாலை நேரங்களில் உணவு உண்டப்பின் நான்கு மணி நேரம் கழித்துச் செய்யலாம்.
- 2) நீர், காபி, டீ குடித்தால் 1/2 மணி நேரம் கழித்துச் செய்ய வேண்டும்.
- 3) பயிற்சி முடிந்த 15 நிமிடங்களுக்குப் பிறகு உணவு உண்பது நலம்.
- 4) சுத்தமான, அமைதியான இடம், ஆசனம் செய்ய ஏற்றது.
- 5) ஆசனங்களை ஏதாவது ஒரு விரிப்பின் மீது செய்ய வேண்டும்.
- 6) ஆசனம் செய்யும் பொழுது ஆடைகள் தளர்வாகவும், வசதியாகவும் இருத்தல் வேண்டும்.
- 7) பெண்கள் மாதவிடாய் காலங்களில் மூன்று தினங்கள் செய்வதைத் தவிர்க்க வேண்டும்.

பொதுவான பயன்கள்:

- 1) மனம் ஒருமைப்படும். அடிவயிறு மற்றும் உள்ளுறுப்புகளின் இயக்கம் சீர்படுகிறது.
- 2) மன அழுத்தம், தூக்கமின்மையைப் போக்க வல்லது.
- 3) மனதை அமைதிபடுத்துகிறது.
- 4) உடலும், மனதும், பூரண ஓய்வு பெறுகின்றன.
- 5) உடல் களைப்பு நீங்குகிறது.
- 6) உடற்செல்கள் புத்துணர்ச்சி பெறுகின்றன.
- 7) உடலுக்கும் உள்ளத்திற்கும் அதிக ஆற்றலைக் கொடுக்கிறது.
- 8) நோய் வராமல் தடுக்கவும், வந்த நோய்களைக் குணப்படுத்தவும் உதவுகிறது.
- 9) நோய் எதிர்ப்பு சக்தியை உடலில் அதிகப்படுத்துகிறது.

I) யோகா:-

1) பத்மாசனம்:-



- ❖ பாயில் காலை மடக்கிக், முதுகுத்தண்டு நேராக உட்காரவும்
- ❖ வலது கால் பாதம் இடது தொடையின் மேலும் இடது கால் பாதம் வலது தொடையின் மேலும் வைத்துக் உட்காரவும்.
- ❖ இரு கைகளையும் நேராக நீட்டி தொடையின் மேல் வைத்து, பெருவிரல் நுனியும் ஆட்காட்டி விரல் நுனியும் சேர்த்து முத்திரை பிடித்து, தியான நிலையில் அமரவும்.
- ❖ இவ்வாறு 4 நிமிடங்கள் அதே நிலையில் உட்காரவும்.

இவ்வாறு பத்மாசன நிலையில் அமருவது கடினமாக இருப்பின் பின் வருவனவற்றுள் (அ /ஆ) ஏதேனும் ஒரு ஆசனத்தை பயிற்சி செய்யவும்
அ) சித்தாசனம்



- ❖ கால்களை முன்புறமாக நீட்டி அமரவும்

- ❖ இடது காலை வளைத்து குதத்திற்கு பக்கமாக வைக்கவும். இடது பாதம் வலது தொடையின் கீழ் வைக்கவும்
- ❖ வலது காலை வைத்து, வலது குதிங்கால் பால்குறியை ஒட்டி வைத்துக்கொள்ளவும்
- ❖ தண்டுவடம், கழுத்து மற்றும் தலையை நேரான நிலையில் வைக்கவும்.
- ❖ இரு கைகளையும் நேராக நீட்டி தொடையின் மேல் வைத்து, பெருவிரல் நுனியும் ஆட்காட்டி விரல் நுனியும் சேர்த்து முத்திரை பிடித்து, தியான நிலையில் அமரவும்.

ஆ) சுகாசனம் :



- ❖ பாயில் காலை நேராக நீட்டி அமரவும்
- ❖ தலை கழுத்து மற்றும் முதுகுதண்டு நேராக வைக்க வேண்டும்.
- ❖ இடது முழங்காலை மடக்கி இடது பாதத்தை வலது தொடையின் கீழ் வைக்கவும்.
- ❖ இடது உள்ளங்கால் மேல்நோக்கி இருத்தல் வேண்டும்.
- ❖ வலது முழங்காலை மடக்கி வலது, பாதத்தை இடது கெண்டைக்காலில் கீழ் வைக்கவும்.
- ❖ வலது உள்ளங்கால் மேல்நோக்கி இருத்தல் வேண்டும்.
- ❖ இரு கைகளையும் நேராக நீட்டி தொடையின் மேல் வைத்து, பெருவிரல் நுனியும் ஆட்காட்டி விரல் நுனியும் சேர்த்து முத்திரை பிடித்து, தியான நிலையில் அமரவும்.

2) வஜ்ராசனம்:-

- ❖ காலின் பெருவிரல், கணுக்கால், முட்டி, ஆகியவை தரையில் படுமாறு, முழங்கால் படியிடவும்.
- ❖ பின்னர் கணுக்காலின் மேல் உட்கார்ந்து உள்ளங்கையை முழங்காலில் வைத்து, உட்காரவும்.
- ❖ முதுகுத்தண்டு நேராக வைத்து மூச்சை ஆழமாக உள்ளிழுக்கவும்.
- ❖ இவ்வாறு 3 நிமிடங்கள் உட்காரவும்.

3) சாவாசனம்:-



- ❖ பாயில் காலை நேராக நீட்டி உட்காரவும்
- ❖ அப்படியே பின்னோக்கி முதுகுத்தண்டை நேராக்கி மெதுவாக படுக்கவும்
- ❖ காலை இடுப்பை விட அகலமாக விரிக்கவும்
- ❖ உள்ளங்கையை மேல்நோக்கி விரித்து, கையை நீட்டி படுக்கவும்
- ❖ ஆழமாக மூச்சை மூக்கு வழியே உள்ளிழுத்து மெதுவாக வெளியே விடவும்
- ❖ இவ்வாறு 5 நிமிடங்கள் செய்யவும்

4) தண்டாசனம் :



- ❖ கால்களை முன்னோக்கி நீட்டி அமரவும்
- ❖ உள்ளங்கை தரையில் படுமாறு வைக்கவும்
- ❖ புட்டம், தொடையின் அடிப்பக்கம், கெண்டைக்கால் தசை மற்றும் குதிகால் நேர்க்கோட்டில் வருமாறு தரையில் அமரவும் முதுகு, தோள்பட்டை, கழுத்து மற்றும் தலையை நேராக வைக்கவும்
- ❖ கால்களை முன்புறமாக நீட்டி தரையில் அழுத்தவேண்டும் கால் விரல்களை முன்னோக்கி வளைக்க வேண்டும்.
- ❖ பின்பக்கமாக வளைவதை தவிர்க்க வேண்டும். வயிற்று பகுதியை உள்ளிழுத்து மார்பு பகுதியை விரிவடைய செய்ய வேண்டும்.
- ❖ இந்த நிலையில் 30 நொடிகள் இருக்க வேண்டும்.,இவ்வாறு இரண்டு முறை செய்யவும்.

5) தாடாசனம்:





- ❖ நேராக நின்று, கால்களை ஒன்றிணைத்து கைகளை தொடையின் பக்கத்தில் வைக்கவும். நேராக பார்க்கவும்.
- ❖ கைகளை நேராக முன்புறமாக நீட்ட வேண்டும். உள்ளங்கை ஒன்றையொன்று பார்த்து இருத்தல் வேண்டும்.
- ❖ கைகளை வானத்திற்கு நேராக உயர்த்த வேண்டும். கைவிரல்களை மேல் நோக்கி இருத்தல் வேண்டும்
- ❖ மெதுவாக குதிகாலை உயர்த்தி கால் விரலில் நிற்கவும். இயன்றவரை குதிகாலை உயர்த்தவும்.
- ❖ மறுபடியும் குதிகாலை முதலில் தலையில் வைத்து பழைய நிலைக்கு திரும்ப வரவும்.
- ❖ மெதுவாக கைகளையும் கீழே கொண்டு வரவும்.

4) பிரணாயாமம் : (நாடி சோதனா)



- பத்மாசனம், சித்தாசனம் அல்லது சுகாசனம் நிலையில் அமரவும்.
- இடுப்பு, முதுகுபுறம், கழுத்து மற்றும் தண்டுவடம் நேராக இருத்தல் வேண்டும்
- அமைதியாக அமர்ந்து எப்பொழுதும் போல் மூச்சு விடவும்.

- கண்களை மூடி வலது பெருவிரலால் வலது நாசித்துவாரத்தை மூடவும்.
- இடது நாசித்துவாரத்தில் மெதுவாக மூச்சை உள்ளிழுக்கவும்.
- மூச்சு உள்ளிழுத்த பிறகு இடது நாசித்துவாரத்தை வலது மோதிர விரலால் அழுத்தி மூடவும்.
- வலது நாசித்துவாரத்தை திறந்து மூச்சை மெதுவாக வெளிவிடவும்.
- மூச்சை வெளியே விட்ட பிறகு மறுபடியும் வலது நாசித்துவாரத்தில் மூச்சை உள்ளிழுக்கவும்.
- வலது நாசித்துவாரத்தை வலது பெருவிரலால் அழுத்தி மூட வேண்டும்.
- இடது நாசித்துவாரத்தை திறந்து மெதுவாக மூச்சு வெளியே விடவும்.
- இவ்வாறு 10-15 முறை செய்யவும்
- இவ்வாறு 4 நிமிடங்கள் செய்யவும்

5) சீதளி பிராணயாமா:-



- ❖ காலை மடக்கி உட்கார்ந்து 5 முறை ஆழமாக மூச்சு விடவும்
- ❖ வாயை "O" என வைத்து மூச்சை நன்றாக உள்ளிழுத்து மூக்கு வழியாக மூச்சை வெளியே விடவும்.
- ❖ இவ்வாறு 5-10 முறை 4 நிமிடங்கள் செய்யவும்.

II. ஆழமான மூச்சு பயிற்சி

4-7-8 மூச்சு பயிற்சி



- ❖ காலை மடக்கி நேராக உட்காரவும்
- ❖ நாக்கின் நுனி மேல் தாடையின் உள்பக்க பல் ஈறுகளின் மேல் வைக்கவும்.
- ❖ வாய் வழியாக “உஷ்” என்ற சத்தத்துடன் மூச்சை வெளியே விடவும்.
- ❖ வாயை மூடி விட்டு, பின் மூக்கு வழியாக மனதில் நான்கு எண்ணும் வரை மூச்சை உள்ளிழுக்கவும்.
- ❖ பின்னர் வாய் வழியாக மனதில் எட்டு எண்ணும் வரை “உஷ்” என்ற சத்தத்துடன் மூச்சை வெளியே விடவும்.
- ❖ இவ்வாறு 10 நிமிடங்கள் செய்ய வேண்டும்

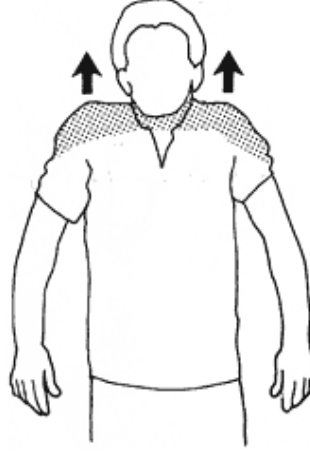
III. தசைகளை தளர்த்தும் பயிற்சி:-

குறிப்பு:-

ஒவ்வொரு தசைபகுதியையும் இறுக்கும் போதும் தளர்த்தும் போதும் கவனத்தை அந்த தசைப்பகுதிக்கு கொண்டு வந்து வித்தியாசத்தை உணரவும். ஒவ்வொரு தசைபகுதிகளையும் 10-15 நொடிகள் இறுக்கவும் பின் 10 நொடிகள் தளர்வாக விடவும்.

- ❖ இந்த பயிற்சியை இருபது நிமிடங்கள் செய்யவும்.
- ❖ வசதியாக நாற்காலியில் உட்காரவும்.

- ❖ கவனத்தை இடது கைக்கு கொண்டு வரவும்.
- ❖ இடது கை விரல்களை மடக்கி பிடிக்கவும் பின்னர் தளர்வாக விடவும் 2 முறை இவ்வாறு செய்யவும்.
- ❖ பின்னர் வலது கைவிரல்களையும் அவ்வாறு மடக்கி பிடித்து பின்னர் தளர்வாக விடவும். இரண்டு முறை இவ்வாறு செய்யவும்.
- ❖ பின்னர் இரண்டு கைகளின் மணிக்கட்டுகளையும் மடக்கி நீட்டவும். இவ்வாறு இரண்டு முறை செய்யவும்.
- ❖ இரு கைகளையும் மடக்கி தோள்பட்டையின் மேல் வைக்கவும். பின்னர் கைகளை நேராக்கவும். இவ்வாறு இரண்டு முறை செய்யவும்.
- ❖ தோள்பட்டை இரண்டையும் மேலே தூக்கவும் பின்னர் தளர்வாக அமரவும். இவ்வாறு இரண்டு முறை செய்யவும்.



- ❖ நெற்றியை சுருக்கி, புருவத்தை மேலே தூக்கவும் பின்னர் தளர்வாக அமரவும். இவ்வாறு இரண்டு முறை செய்யவும்.



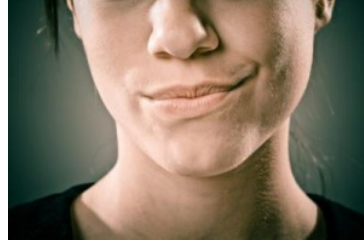
- ❖ கண்களை இறுக்கமாக மூடவும், பின்னர் தளர்வாக விடவும் இவ்வாறு இரண்டு முறை செய்யவும்.



- ❖ பற்களை இறுக்கமாக கடித்து கொள்ளவும்.



- ❖ உதடுகளை ஒன்றோறொன்று சேர்த்து இறுக மூடிக்கொள்ளவும்.



- ❖ கவனத்தை கழுத்திற்கு கொண்டு வரவும் தலையை நேராக்கி மேலே பார்க்கவும் பின்னர் நேராக்கவும், இவ்வாறு இரண்டு முறை செய்யவும்.



- ❖ தலையை கவிழ்க்கவும் கீழ்தாடை மார்பை தொடுமாறு செய்யவும் பின்னர் நேராக்கவும், இவ்வாறு இரண்டு முறை செய்யவும்.
- ❖ முன்னோக்கி வளையவும் மார்பு வயிற்றுப் பகுதியை தொடுமாறு செய்யவும் பின்னர் நேராக அமரவும். இவ்வாறு இரண்டு முறை செய்யவும்.
- ❖ கவனத்தை காலுக்கு கொண்டு வரவும் கால்களை நேராக நீட்டவும். தொடைப் பகுதியில் இறுக்கத்தை உணரவும். பின்னர் தளர்வாக விடவும். இவ்வாறு இரண்டு முறை செய்யவும்.



- ❖ காலின் விரல்களை மேல்நோக்கி நீட்டவும், கெண்டைக்கால் தசைப்பகுதியில் இறுக்கத்தை உணரவும் பின்னர் தளர்வாக விடவும் இவ்வாறு இரண்டு முறை செய்யவும்.

நன்றி

APPENDIX - J











